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ABSTRACT

Focusing on research and evaluation in college reading, the papers in this volume were drawn from the ninth annual meeting of the National Reading Conference held in 1959. Among the topics discussed in the 19 papers are the following: a proposed model of reading comprehension, factors affecting reading test performance, student attitudes toward reading, research in reading at the University of Michigan, reading tests and college performance, improving reading in the subject matter areas, vocabulary development for mature students, similarities and differences in college and adult programs, counseling in the reading program, the measurement of reading comprehension, the relationship between reading and intelligence scores, evaluation of eye-movement photography in reading diagnosis and reading training, integrating the reading program into the curriculum, initiating the college or adult reading program, and keeping reading programs in operation at the college level. (FL)

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RESEARCH AND EVALUATION IN COLLEGE READING

The
NINTH YEARBOOK

The National Reading Conference
for
College and Adults

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Preface

The purpose of this volume is to report on the work of the National Reading Conference as reflected in the ninth annual meeting at Texas Christian University December 3-5, 1959.

The continuing interest in encouraging and reporting research in reading is evident in this issue. Although an earlier issue of the yearbook was given largely to evaluation it has been the opinion of the Executive Committee that, along with research, there should be emphasis on evaluation of practices in reading instruction.

Evidence of values in research and evaluation becomes clear by study of reading programs in institutions that have had programs for a number of years. A considerable number of the programs have undergone marked change due, in part, to the application of findings of research and the use of evaluation procedures.

Many requests are received by the Conference for additional information relating to initiating reading programs, and a number of people attend the Conference Meeting in order to get help in starting programs. Even though the Eighth Yearbook was given largely to starting reading programs the last three articles in this volume are included to meet further the same need.

April, 1960

Oscar S. Causey

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Studies of Student Readers and Their Implications for College Instruction

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University of Oregon

Contrary to the impression one sometimes gets from articles written by teaching machine enthusiasts or from conversations with *bon vivants* returning from educational conferences, investigations dealing with the reading behavior of upper school students are not of recent origin. As a matter of fact, they are not of this century. The early experimental study of eye movements by such European psychologists as Cattell, Erdmann, and Javal date back to the middle 1800's. That such studies reflected a psycho-physiological concern with perception rather than a search for instructional improvement is beside the point. However, it is doubtful that even instruction-centered research in college reading can be considered relatively new. As a case in point, the October, 1894, issue of *Educational Review* carries an article written by Adelaide Abell entitled "Rapid Reading: Advantages and Methods." The subjects of Miss Abell's investigation consisted of Wellesley undergraduates; and, interestingly, the data presented indicate that reading deficiencies appeared among college students prior to those so-called "questionable" modern school practices.

The period which connects those early investigations with the efforts of this conference has seen the reading act searched and researched. A rough estimation of printed articles treating some more or less systematic observation of factors pertinent to the reading process could be placed at five thousand. The very bulk of this literature quite probably reflects both the social sensitivity and the lack of clarity of the involved issues. If, at present, we do not have in hand those neat and complete solutions to our reading problems, it cannot be laid to the lack of fervent, persistent, and gross effort.

This paper does not attempt to present a complete summary of the research relating to the upper grade reader. Those interested in such a treatment of the research should become familiar with Bliesmer's excellent summaries appearing in each National Reading Conference Yearbook. This paper will treat certain representative studies as a means of sketching an

impression of our present understanding of the upper grade student reader. This rough picture of present evidence, in turn, will be used as a source for deriving some implications for college instruction.

Generalizations on Pre-College Readers

It may be reflective of a research status and need that it has been customary to generalize to the high school and college reader the findings of investigations based upon analysis of the elementary school pupil. A survey of this research reveals a concentration of effort upon identifying the anomalies of the poor reader rather than the adequate reader, and thus has provided an excellent source of differing opinion concerning "the" cause of reading disability. Scarcely any variable affecting human behavior, innate or environmental, has escaped consideration as a possible cause of reading disability. Explanations of reading disability have included theories of specific hereditary disability, congenital word blindness, acquired aphasia, confused dominance, and biological reversion of the species. Strong adherents for each of these various theories of causality still may be found who directly or indirectly indicate that one of these theories will explain most disability in reading.

At present, experienced researchers consider these "explanations" to be hypotheses which may explain why ***some*** individuals experience difficulty in learing to read. In general, the nature of recent research tends to point up the co-determining influence of three areas of reader characteristics: mental ability, biological status, and environmental experiences. With the exception of the fact that mental ability plays a prominent role in most formulas for determining extent of reading disability, there appears to be a reluctance on the part of authorities to identify any one aspect of these three general areas which could be used to accurately predict difficulty in learning to read.

Most of the studies of student readers have dealt with the relationship between measures of one or two human characteristics and reading ability. A summarized listing of those traits which have been related to reading disability in this manner would include: 1) ***limited intellectual capacity*** — generally, low intelligence or lack of mental maturity; 2) ***emotional maladjustment*** — most frequently, general anxiety and nervousness, introversion, aggression, withdrawal, and chronic worry; 3) ***physical status*** — including visual, neurological, auditory, glandular, and general health deficiency; 4) *general environmental experiences* — primarily, low socio-

economic status, inadequate social adjustment, poor intrafamilial relationships, culturally ascribed sex roles, and general limitation of learning experiences; and 5) *educational factors* — most frequently school absence, frequent change of schools, lack of readiness for initial instruction, lack of adjustment to individual abilities, and monolatry of instructional approach.

Representative College Studies

Of the factors thus identified, only intelligence has received consistently high corroboration at the college level, the average correlation here being approximately +.70 for group verbal measures, and slightly lower for individual verbal measures. (17) Fewer studies have been made of the relationship between non-verbal intelligence measures and reading ability. While these correlations have been lower than those obtained for verbal intelligence, (around +.40), they are high enough to suspect that the relationship between intelligence and reading ability is something more than common test content. (4) In view of the factor analysis findings of Anderson (1) and Davis (6), among others, one might be suspicious if reading-intelligence correlations were minimal.

Studies of personality variables have tended to produce conflicting evidence concerning their significance for reading disability. Not all investigations report positive association. Some investigators have found that the same personality quirks are present in both good and poor readers. (15) Others have found that college students with personal problems serious enough to elicit a request for counseling aid exhibited no significant differences in reading ability when compared to students drawn from the general college population. (3) There has been little common identification of significant traits between studies of specific personality test profiles and college level reading disability when the investigators were from different professional genealogies. This is not surprising, since little consistency has existed between these various studies concerning such elements as the reading measures, the personality measures, the definition of reading disability, or the technique of association. A promising avenue of investigation in this area has been employed by Smith and his fellow researchers in the use of a modified experimental design to study the influence of directive and non-directive instructional techniques upon permeable-anxious personalities and rigid-anxious personalities. (13) Certainly the reports of the beneficial influence of the use of ataraxic

drugs in the remediation of pre-college readers should be worthy of college level investigation.

Relatively little thorough investigation has been made of the relationship between either physical status or experential factors and college level reading ability. Possibly this is the result of our belief that college attendance is the product of a selective process which rules out the significance of such factors. The data available from one or two factor studies do not clearly disprove this assumption. Swanson and Tiffin were unable to identify that significant differences existed between the visual efficiency of good and poor college readers. (16) However, Snavely found significant differences to exist between good and poor college readers on such variables as socio-economic status of parents, early experiences in listening to oral reading in the home, and size of high school attended. (14) A study at the University of Georgia found evidence that students of urban backgrounds were superior in reading comprehension to students of rural background. (12)

There would appear to be a growing concern about the college student's ability to make effective use of whatever reading skills he does have. Of particular interest to the writer were Perry's comments to the Harvard Faculty: "Out of fifteen hundred of the finest freshmen readers in the country, only one hundred fifty even made a claim to have looked ahead during twenty minutes struggle with a textbook chapter. And the vast majority of these only to determine how long the assignment was." (11)

The problem posed by ineffective study-learning habits, while serious to the majority of college students, is disastrous to the poor reader. (7) Currie has presented evidence which would indicate that students with better reading ability also exhibited better study habits. (5) The rich get richer, perhaps. It is a sad commentary that some investigations of the efficacy of different study approaches have been less than conclusive, because without specific training, the subjects were unable to use any study technique with effectiveness. (2)

Multifactor Investigation

We owe much of our present knowledge of the student reader to such limited factor investigations as these. Undoubtedly, more of the better designed research of this type needs to be done. However, it is apparent that these studies permit but fractionalized observation. A com-

posite picture of the college reader formed by summarizing and integrating the pertinent findings of a series of studies utilizing different populations can not be assumed to be the same as that which has been formed by a broad sampling of the characteristics of the same college population.

Two multi-factor investigations of college readers, neither without its limitations, are presented here as illustrative of the possibilities of this approach.

The Holmes study. (9) The purpose of this study was to investigate the hypothesis that underlying the "speed" and "power" components of college level reading is a multiplicity of related and measurable factors, and that deficiencies in these underlying factors were related to disabilities in "speed" and "power" of reading. Forty group and individual tests were administered to 230 college students. These tests included measures of intelligence, reading rate, reading comprehension, word attack skills, language facility, small motor skills, academic techniques, eye movements, and personality traits. The data were analyzed by correlation procedures. The correlations were converted into *z* scores, tested for significance, and combined into descriptive syndromes of student characteristics.

The findings of this study supported the hypothesis that poor readers at the college level do exhibit characteristic syndromes. The syndrome of the slow (poor rate) readers included slow reaction time for small motor and oculomotor movements, slow and inaccurate discrimination of printed stimuli, limited vocabulary, and poor word attack skills. Intelligence estimates based upon time limit tests were below the college average. The study habits of slow readers were not substantially different from the adequate reader.

It is interesting, but not surprising, to note that the syndrome for the non-powerful (poor comprehension) readers was essentially the same as that of the slow readers, with the exceptions that low verbal intelligence test results were a more significant characteristic of the "non-powerful" syndrome, and that the non-powerful reader tended to compensate with a dogged study approach. A differential analysis of personality traits failed to exert influence upon either syndrome.

The Iowa study. (8) This study was concerned with estimating the extent to which selected measures of vocabulary, word attack skills, reading comprehension skills, verbal intelligence, nonverbal intelligence, personality traits, socio-economic status, factors of pre-college experiential

background, and academic status would discriminate, individually and in multiple combination, between university freshmen with adequate reading comprehension and university freshmen with inadequate comprehension. The seventy-seven freshmen comprising the adequate comprehension group obtained a percentile rank of thiry-five or above on the criterion test of reading comprehension. The eighty-seven freshmen comprising the deficient group obtained a percentile rank of fifteen or below on the criterion test. These necessarily arbitrary criteria are consistent with recommendation practices of college reading programs.

The basic procedure in the analysis of the data consisted of comparing the performance of these two groups on the various measures of the independent variables. Due to the dichotomous nature of the sample of the subjects, this comparison was accomplished through the use of correlation procedures in the form of (1) simple point biserial correlation of the individual measures with the dichotomous criterion, and (2) multiple point biserial correlation, when selected linear combinations of the individual measures were correlated with the dichotomous criterion. The underlying purpose of the study was to investigate the hypothesis that disability in reading comprehension at the college level is indicative of a more general and more basic deficiency than college reading comprehension *per se*.

Measures of the following individual variables were found to discriminate significantly between the adequate and deficient readers: verbal intelligence, nonverbal intelligence, socio-economic status, psychopathic deviation (MMPI), masculine-feminine interest (MMPI), high school academic achievement, college academic achievement, reading vocabulary, and word attack skill. The comprehension skills of understanding details, interpreting idea relationships, and inferring tone and intent significantly discriminated between the two groups, even when measured over material equivalent to seventh grade readability.

When the various measures were combined into several factor multiples, it was found that certain variables made a greater contribution to the discrimination effected between the two groups of readers. Of these "powerful discriminators" the nonreading measures of verbal intelligence, socio-economic status, psychopathic deviation, and masculine-feminine interest were most notable. The dominant reading skill variables consisted of recognition vocabulary, inference of tone and intent, and interpretation of idea relationships.

It is interesting to note that specific pre-college experiences were not particularly successful in differentiating between the two groups. For example, attendance in preschool or kindergarten, listening to oral reading as a child, the presence of reading materials in the home, the separation or divorce of parents, the need for glasses during the early primary grades, etc. did not discriminate between the two groups. In some cases, both groups revealed high frequency on an item; in other cases, both groups revealed little or no frequency. However, the poor comprehension group did report, (at a level to be statistically significant), that they felt that their fathers understood them better than their mothers.

It may be of some administrative pertinence that this study pointed up substantial attrition and academic probation occuring among the deficient comprehension group during their first semester of university attendance, in spite of the fact that they participated in special corrective reading classes. Forty-six percent of the deficient group incurred probationary status prior to the second semester. Approximately fourteen percent of this group withdrew from school during this period.

Summary

Investigations of the nature of the college student with basic deficiency in reading have been fragmentary in nature. The information presently available would indicate that this student more than likely will exhibit downward deviations from the norm in verbal and nonverbal intelligence; recognition and meaning vocabulary; advanced word attack skills; comprehension skills demanding reasoning; and in study-learning skills. There is some indication that many of these poor readers manifest an underlying negativism toward book-centered situations, although they may be persevering in their desire to finish college. The specific personality dynamics involved are not clear at present. There is a tendency for these students to come from lower social class backgrounds when compared to good readers, indicating a need for more thorough investigation of precollege experiential background. Investigations of physical status and precollege school experiences have not revealed significant factors. It is possible that such difficulties may be primarily explained by deficiency in learning ability which is confounded by the number of other anomalies rather than the type of anomalies present.

Implications

The feeling of power which surges upward as one contemplates the opportunity to write down "implications" is much like the urge to floor

the accelerator on a city freeway. Considerable effort was exerted here to abide by the "regulations" of available research results. Occasionally, however, temptation cannot be suppressed, and where this has occurred in the following treament, the writer must fall back upon the response of the Hindu mystic who, being challenged on his assumptions, replied with great dignity, "It was *revealed* to me."

Research Needs

1. Carefully designed investigations which attempt to gather rather complete data on the excellent and poor college reader alike.
   a. The nature of assessment should be influenced by the needs of a prediction and placement; and, therefore, should be concerned with precollege language skills development, academic preparation, and general experiential background.
   b. This evaluation should be sensitive to the need for clarification of the relationships between reading and emotions. It is suggested that more useful results may be produced by including these factors in a study of the total reader than from solitary correlation of reading test and personality test results. It is further suggested that the results will be of more immediate use if the data is gathered in terms of operational attitudes which directly influence the reading-learning situation rather than in terms of extreme pathology.
2. A more descriptive analysis of the learning thought processes which differentiate good college readers from poor. This would imply that we need more functional-descriptive measures than have been used heretofore to assess:
   a. variations in vocabulary profiles
   b. degrees and types of organized concept masses
   c. speed, accuracy, and methods used in the assimilation of new concept patterns
   d. utilization of inductive and deductive analysis
   e. study techniques typically employed to learn and retain textbook data
   f. sensitivity to language congruity
   g. changes in comprehension attack which accompany increasing difficulty of source material

3. Analysis of the changes in the learning-thought processes suggested above when the mode of response is systematically varied to include reading, listening, speaking, and writing.

4. Experimental variation of corrective reading instruction at the college level in terms of the trait-syndromes resulting from this total assessment. In this controlled program adjustment, particular attention might be given to the relationships between program length, instructional procedures, and skill emphasis and changes in:
   a. attitude patterns
   b. patterns of problem solving
   c. vocabulary and concept mastery
   d. reading skill profiles

5. An investigation of whether a certain degree or pattern of reading deficiency can be identified, which, when a part of characteristic syndromes, can be used to predict college academic failure or attrition.

6. Identification of those compensatory factors which enable some students to successfully complete college in spite of severe reading deficiencies.

Administrative Implications

In view of the poor college reader's pattern of deficiency in intelligence, reading vocabulary, word attack skills, and attrition, and in view of the debatable evidence of short term improvement for such a seriously retarded reader, it would seem questionable:

1. To sell the reading program as a means of stemming attrition or raising grade-point-ratios.

2. To sink funds into expensive materials and equipment with the hope that they will quickly remediate these difficulties.

3. To think in terms of one short term reading class which will meet the basic needs of all deficient readers.

However, it would seem desirable:

1. To think of requiring a trial enrollment for those students who exhibit serious reading and study skill deficiencies but who also exhibit high academic potential.

2. To require reduced course loads for those students with serious reading and study deficiencies until they demonstrate capability to handle regular loads.

Instructional Implications

1. It would seem axiomatic that the procedures utilized in any particular college reading program should be consistent with the determined objectives of that program. Ideally, the objectives for any particular program, in turn, should be determined by the relevant characteristics of the student population it serves, while being consistent with the basic philosophy of the parent institution. Thus,
   a. it is not reasonable to establish a specific type of college reading program without first determining need and objectives.
   b. the parroting of a program developed to meet the needs of another institution deprives the program of its unifying character and predisposes it to instructional weakness.
   c. the number of different college reading programs could equal the number of college reading programs in existance.
   d. some possible unit elements of a college program ***might*** include variations of one or more of the following:
      (1) short intensive rate improvement courses
      (2) individual remedial instruction on basic reading skills
      (3) carefully structured courses in the improvment of basic comprehension
      (4) therapy-instruction in a counseling environment
      (5) orientational study-skills sessions

2. In view of the fact that reading is an essential mode of operation in most college classes, the personnel of the college reading program may well consider their responsibilities to include sharing information with general faculty on such items as the nature of student reading difficulty, the effective reading assignment, and the value of sources of varied level of difficulty.

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Reading Compehension: A Proposed Model

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In a recent report, (1) J. P. Guilford has presented a theoretical model of intellect derived from his impressive factor analytic studies of creative hinking. The article appeared at a time when I was grappling with the problem of how to teach paragraph comprehension. Because it helped to clarify a number of complexities for me, and because it constitutes a new look at intelligence, I would like to use his model as a springboard for some speculations about intelligence and reading comprehension.

GUILFORD'S "THREE FACES OF INTELLECT"

Figure 1 presents Guilford's model as it appeared in *The American Psychologist*. Levels of intellectual products appear on the vertical dimension, beginning with the unit, then classes of units, next, relationships among classes, systems of relationships, etc. The horizontal dimension presents another order labelled "Contents," beginning with the figural and ending with the behavioral. The third dimension presents more familiar ways of thinking about thinking, operations labelled cognition (roughly recognition), memory, divergent and convergent thinking, and evaluation.

It is Guilford's thesis that a particular intellectual function occurs at the point of intersection of any three aspects of the three dimensions (see figure 1), for instance, point A. Furthermore, he contends, we can probably devise a test to tap that function. ***Cognition*** (1) of a ***figural*** (2) ***unit*** (3) might be measured by the ***Street Gestalt*** test. At point B, ***evaluation*** (1) of a ***figural*** (2) ***unit*** (3) is thought to be measured by a test of perceptual speed. He has devised tests for many of the potential 6x5x4 or 120 points predicted by the model.

THE TWO FACES OF COMPREHENSION

Application of this framework to the reading process does a little damage both to Guilford's model and to the reading skills, but with a

1 Guilford, J. P. "Three Faces of Intellect." ***American Psychologist,*** VD (August, 1959) 469-479.

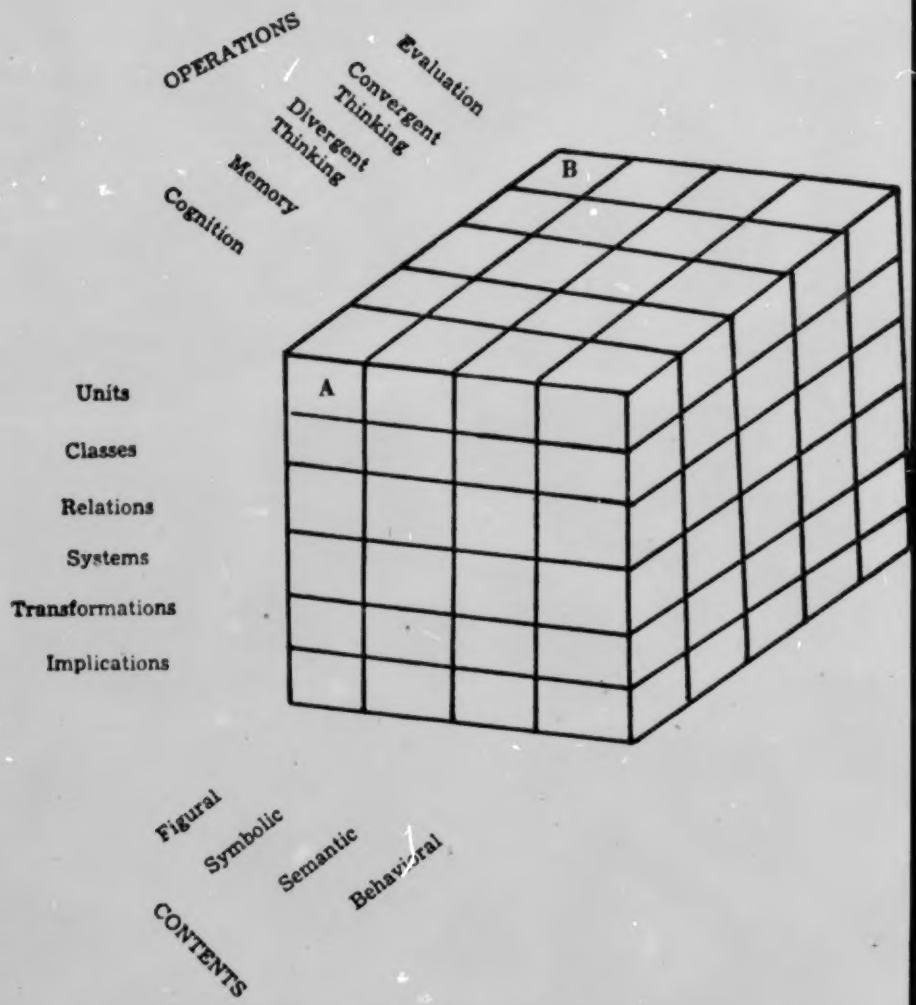

Figure I. "Three Faces of Intellect."

(Figure 1 from page 470 of volume 14 of the *American Psychologist* is used by permission from the American Psychological Association.

little bending, twisting and trimming, we can get them into the same bed.

First, we need consider only the semantic content since we are dealing with verbal communication in adults. We now have two dimensions (figure 2). The vertical dimension remains faithful to Guilford's model

(Implication) Implications	Implications	
(Transformation) Application	Applications	
(System) Paragraph	Conclusions resulting from: logical order temporal order spatial order	Main Idea: as topic sentence as implied
(Class) Sentence Similarity and Difference	Contrast: of subject of intent	Comparison: of subject of intent
(Unit) Sentence	Literal meaning	Implied meaning
	Convergent (deductive) thinking	Divergent (inductive) thinking

Figure 2: A Model of Reading Comprehension

with the exception of "Relations," for which there appears to be no appropriate reading skill. On the horizontal dimension, note the deletion of cognition, memory and evaluation:

1. When we read, we seldom merely cognize material. Word recognition and skimming seem to come close to Guilford's meaning, but we usually *do* something to a sentence when we comprehend it. The doing tends to occur in either a divergent way (e.g., "That sentence reminds me of . . . ") or a convergent way (e.g., "Oh, he said we *seldom* merely cognize . . . ").

2. Memory, in its usual sense, goes beyond comprehending at this moment. Therefore, it appears to be one step removed. (1) "Memory" has begun to take on new meanings in psychological thinking. One of these meanings derives from the concept of ***reverberatory activity***, the continuous firing of a neuron circuit or network over period of time. This activity appears to account for ability to com-

prehend sentences. The first words or phrases in a sentence remain active until the whole sentence is read. Thus all words and phrases are active until the whole sentence is read. Thus all words and phrases are active simultaneously, leading to the development of a new complex, the main idea of the sentence. With slow reading or brief reverberatory activity, no complex can develop. In this sense, adequate "memory" is necessary for comprehension.

3. Evaluation nicely fits our usual concept of critical reading, what one decides about the validity of the material after one has understood it.

Before considering what remains after the plastic surgery, let's take a look at intelligence and comprehension as they appeared before the operation.

Intelligence, Concept Formation and Reading Comprehension

I find it much easier to define intelligence in neurochemical terms than in the traditional terms of psychological tests. Perhaps that's because I know very little neurochemistry and too much about psychological tests. Here is the only definition which makes sense to me:

Creative intelligence is the ability to form concepts by ***inductive*** thinking. *Critical* intelligence is the ability to evaluate one's concepts by ***deductive*** thinking. It's no wonder then that the vocabulary items (concepts) of the Stanford-Binet constitute a very good measure of intelligence and that Terman emphasized the importance of self-criticism as an essential part of intelligent behavior.

If the definition is adequate, the process of concept formation becomes of paramount importance. Here is an example of the way in which a concept may develop:

Tommy, aged 10: "I ran across the lawn to pick up the baseball. Nobody ever hit it that far before. Just before I was picking it up, 'Mrs. Snooty' opened the door. Boy, her eyebrows was half-way up her forehead. She said, 'Young man, don't you know that you are trespassing. Obviously your parents don't care whether you grow up to be a law-breaker!' What could I say? Boy, did I ever feel small."

Tommy, aged 14: "You know *Sondra,* don't you? Man, like Hollywood in an ice tray. I asked her to the dance Saturday. She gives me one of those looks like I just crawled out from under a rock and says,

'Me? Go to the dance with you? Run along, little man,' she says, 'don't bother me.' "

Tommy, aged 18: "Don't say *Charcoal Hut* to me! I'm going to play it big to dazzle my new mate so I take her there for dinner. They've got one of those menus that's full of Franch and *no prices.* So I ask the waiter, 'Where are the prices?' He looks down his nose at me and says, like icicles, 'Our clientele don't choose their dinners by the price.' I could have walked under the table in a top hat!"

Now, Tommy is reading a novel:

"The clerk said, 'I'm sorry, madam. We don't have charge accounts.' She replied, superciliously, 'Well, if you don't want my business, I'm sure there are other shops which do!"

Tommy: "I wonder what *superciliously* means. Oh, I know. That's when a person raises his eyebrows and looks down his nose at you so you feel small and embarrassed."

Tommy had developed, by repeated experience, the concept for which the label, *supercilious,* stands. Each new experience aroused vestiges of the previous similar experiences. The similarities among those experiences were the social error or *faux pas,* the facial expression, the tone of voice, and Tommy's emotional response. Gradually, the similarities began to stand out from other aspects of the situations and to coalesce into a stable entity. This entity is the concept.

While this extended process seems to be the usual way in which concepts develop, we find the prototype of the verbal concept formation process as it occurs in reading within a single sentence. When a sentence is read rapidly, each word and phrase becomes neurally active, i.e., reverberates. When all the sentence parts reverberate simultaneously, a new concept is formed, i.e., the sentence idea.

Now let's return to the new model of reading comprehension (figure 2). Note that comprehension operates at several levels as required by the complexity of the material. The unit is considered to be the sentence, classes to be the grouping of sentences as similar or contrasting in subject and intent, and the system to be the paragraph. A convergent thinking style will then be most suitable for comprehension of literal meanings, for determining differences, and for drawing a conclusion from an orderly sequence of sentence ideas. The orders tend to be logical, temporal (time order) or spatial. Note that a conclusion is simply a kind of main idea

usually appearing at the end of a paragraph. It's primary difference from a main idea is that it may be *deduced,* i.e., is determined by, the sequence which precedes it.

A divergent style of thinking best fits implied meanings, the noting of similarities, and the ability to *induce* or infer a main idea which is implicit in the paragraph.

If the foregoing analysis is correct, we must conclude that comprehension skills are scarce. Any and all "skills" presented in the usual textbook discussion of comprehension must be encompassed by the few described herein. Actually, a similar conclusion has been reached in numerous factor studies of reading comprehension.

How to Teach Paragraph Comprehension

I would like to bring this discussion back to earth by returning to my original problem, how to teach paragraph comprehension. My staff worked out a procedure independently of the model presented, but, interestingly, the procedure is congruent with the model. Furthermore, preliminary tryouts with dull-normal children resulted in substantial increases in paragraph comprehension.

1) Read the first sentence; assume that it is the main idea.
2) Read the second sentence; then,
   a) if the meaning of the first sentence encompasses the second, continue to assume that the first sentence is the main idea; or,
   b) if the first sentence is too narrow, broaden it to include the second sentence idea.
3) Continue with each succeeding sentence as in the second step.

Try the procedure with the following paragraphs:

Sentence 1: "For most of us, the physiological limit of effective reading is not approached by age twelve, or even age twenty-five."
Main Idea: (assumed): "The limit of effective reading it not reached by age twenty-five."

Sentence 2: "From the first grader's joyful recognition of his name to the teenager's euphoric daydreams about Frank Merriwell's adventures is a long step."
(Implied by the main idea assumed above.)

Sentence 3: "But equally long is the step which enables one to respond to the parched barrenness of Eliot's 'Wasteland.'"
(Implied by main idea assumed above.)

Sentence 4: "As with bridge, golf, and human nature, there seems always to be more to learn."

(Restatement of first sentence. Thus, main idea, "The limit of effective reading is not reached by age twenty-five.")

Some paragraphs are not organized in such convenient fashion:

Sentence 1: "The student who studies history at a snail's pace shows brilliant reading ability when his purpose is to discover the day's baseball scores."

Main idea: (assumed): "The sports page brings out good reading ability."

Sentence 2: "He skims the newspaper rapidly, allowing no distractions such as the society or editorial page."

(Implied by main idea assumed above.)

Sentence 3: "A reader with a purpose is likely to be an efficient reader."

Main Idea: (corrected): "Purpose is necessary for efficient reading."

If the paragraph structure is such that the initial sentence states the main idea, the three-step procedure is simple. But if the main idea appears in a central or terminal position, or, if it is merely implied, the problem-solving procedure will be equally effective.

Implicit in these remarks has been the assumption that reading, divested of its mechanics (such as word recognition and rate), is directed thinking. Essential to the thinking process is concept formation, and the prototype of concept formation is the comprehension of a single sentence.

Factors Affecting Reading Test Performance

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Two common types of reading performance tests are the time-limit test on which the subject reads for a specified amount of time and the amount-limit (or power) test on which the subject is allowed to finish the selection. Some tests in general use represent a combination of the two types in that the subject is told that he will be asked to mark his place after a length of time (usually unspecified in the instructions to the subject) and then continue reading until he finishes the passage. Tests falling in these general categories differ in length of reading selections, in instructions concerning timing, and in practices concerning timing of comprehenson questions.

From time to time there has been speculation concerning the effect of differences in length of passage on reading performance. (11) Questions also have been raised about the differential effects of time-limit and amount-limit tests on reading rate. Perhaps the most recent comprehensive investigation of these questions was that made by Humphrey. (1) This study showed that three assumptions which underlie, at least implicity, the practices of many reading programs and the rationales of some reading manuals were not verified by research. These assumptions are:

1. Subjects read faster on time-limit than on amount-limit tests because of the realization that they can read only for a limited amount of time.
2. The pressure of periodic interruptions will result in successively higher rates on time-limit tests.
3. Persons read faster on short tests than on longer tests.

Humphrey pointed out that it is not known to what extent periodic interruptions and subsequent marking of reading times on the test booklet interfere with the reading process. He assumed, on an *a priori* basis, that this interference would be negligible. (1)

The present study is concerned with certain previously unanswered questions. What effect is produced on reading rate *and comprehension* by varying the length of reading selections under differing conditions of

timing? What is the influence of specified personality dimensions on reading test performance?

The investigation was concerned with four specific questions:

1. What is the effect on reading performance (rate and comprehension) of various types of periodic interruptions during reading?
2. Does variation in the length of reading passages of comparable difficulty and interest affect reading performance?
3. Is there an interaction between conditions of reading and length of passage which affects reading performance?
4. Is reading performance differentially affected by periodic interruptions as a function of certain personality dimensions?

Subjects used in the study were 117 freshmen and sophmores who were enrolled in Reading Improvement sections at Marquette University. Students were divided into four groups for purposes of the investigation. Mean scores of the groups on the various subtests of the Survey Section of the *Diagnostic Reading Test,* Form C, were as follows:

Group	*N*	*Rate*	1*B*	2	3
1	29	268	14.2	51	15.0
2	30	273	14.7	52	14.4
3	30	275	15.0	51	14.7
4	28	267	14.8	53	15.3

Analysis of variance indicated that there was no difference among the groups with regard to the scores yielded by this test. The groups were also equated on the basis of scores for the two personality dimensions measured by the *SA-S Senior Scales.*

Three complete articles differeing in length were used as reading selections. These articles were 800, 1600, and 3000 words long. They covered material likely to be unfamiliar to college undergraduates but which, on the basis of previous experience, was interesting to them. The titles of the passages used were:

Passage I (800 words) Event in Lahore
Passage II (1600 words) Master Spy
Passage III (3000 words) Terribly Strange Bed (adapted)

Flesch scores for reading difficulty of the three passages fell in the *fairly difficult* range of the Flesch scale. Readability averages were: Passage

I, 56; Passage II, 54; Passage III, 55. The Dale-Chall scores for these passages were all in the 9th-10th grade range of difficulty. Flesch scores for interest fell in the *interesting* range, varying from 35 to 37.

Each passage was followed by ten questions of multiple-choice type with five alternatives. These questions were designed to measure the students' ability to comprehend and recall main ideas and important details and to draw pertinent generalizations and relevant conclusions from the material they had read. In a previous administration of these questions to 100 college freshmen and sophomores who had ***not*** read the passages, the mean score for each passage was 2 correct. No question was answered correctly by as many as 50% of these students.

The passages were read in two class sessions by the four groups of students. Passages I and II were read in the first session. There was no scoring, interpretation or discussion of the procedure before the completion of the entire cycle. All students were allowed to complete the comprehension questions at their own rate.

Groups 1 and 2 read the passages under conditions of minimal interruption. The students in these two groups timed themselves from a wall clock with a sweep second hand. Group 1 experienced no interruptions at all. The students in this group read each passage until they finished it and then answered the questions. Students in Group 2 wrote down the number of the line which they were reading at the end of two minutes. They then finished the passages without further interruption, timing themselves in the same manner as group 1 did.

Groups 3 and 4 read the passages under conditions of periodic interruption. Time was announced orally every minute while Group 3 was reading the passages. While the students in Group 4 were reading, the instructor walked to the front of the room every minute and wrote the elapsed time (in minutes) on a chalk board. When they finished the passages the students in both groups took the elapsed seconds within the minute from the wall clock.

Results are shown below:

		Passage I		Passage II		Passage III	
Group	N	Rate	Comp.	Rate	Comp.	Rate	Comp.
1	29	260	6.8	270	7.6	275	7.2
2	30	264	6.7	269	7.9	281	7.8
3	30	240	3.9	275	4.8	272	5.1
4	28	249	4.6	273	5.5	275	5.3

Analysis of variance shows that the four groups do not differ significantly with regard to rate but do differ with respect to comprehension. A pooled variance t-test, however, revealed that Groups 1 and 2 do not differ significantly with regard to either rate or comprehension on any of the passages. Similarly, Groups 3 and 4 do not differ in reading performance.

Therefore, it may be concluded, with respect to these samples, that:

1. There is no difference between uninterrupted amount-time reading (Group 1) and amount-time reading interrupted once (Group 2) with regard to reading performance;

2. There is no difference in reading performance between the groups (Group 3 and 4) subjected to two different types of periodic interruptions.

Since there was a difference in comprehension among the four groups but none between the two pairs as shown by the t-test, Groups 1 and 2 and Groups 3 and 4 were combined into Groups A and B. Students in Group A comprise those who read under conditions of minimal interruption. Those in Group B were subjected to periodic interruptions. Mean scores of these groups on the reading passages were as follows:

		Passage I		Passage II		Passage III	
Group	*N*	*Rate*	*Comp.*	*Rate*	*Comp.*	*Rate*	*Comp.*
A	59	262	6.7	269	7.7	278	7.6
B	58	244	4.3	274	5.1	273	5.2

Statistical analysis of the results shown above indicates that there is no significant difference between the groups with respect to rate. The difference between the groups in regard to comprehension, howver, is significant, both statistically and educationally. It may, therefore, be concluded that periodic interruptions of the types used in this study adversely affect comprehension although they do not affect reading rates. This finding suggests that readers find it difficult to vary their reading rates even with the aid of periodic time spurs. Such an indication is congruent with the reports of Spache, (10) Sheldon, (6;7) and McDonald (2) concerning flexibility of reading rate. It is also in accord with another investigation we reported elsewhere. (3)

* It should be noted, however, that the periodic interruption group read more slowly on the first passage. This difference approaches statistical significance. Presumably, the students in the group experiencing the

interruptions required an opportunity to become accustomed to the testing situation. Performance for this group with regard to rate for the other passages does not differ from that of the minimal interruption group.

There were no significant differences in reading performance for either group among the three selections. It may be concluded, therefore, that length of passage does not affect reading performance even when conditions of reading are varied as in this study.

The rationale of the *SA-S Senior Scales* together with the empirical evidence reported suggested that reading performance might be differentially affected by periodic interruptions as a function of the two dimensions measured by the instrument. (8;9)

This instrument resulted from the investigation of personality dimensions which affect reading performance made by Smith and his colleagues. (8) They constructed an objective personality test based upon items adapted from Cattell's *Sixteen Personality Factor Questionnaire.* This instrument, called the *SA-S Scales,* differentiated college students who improved rapidly in reading from those who improved slowly. An analysis of items which differentiated these two groups yielded four personality types which were in conformity with Smith's previously formulated stability-rigidity theory of personality. This theory conceptualizes the personality dimensions of *degree of anxiety* and *degree of permeability.* (9) The concept of *permeability* embraces sensitivity to external environment, flexible adaptation in problem solving, imagination, and ideational fluency. *Anxiety* is defined as a generalized and continuing state of tension. Rankin (4) gives an up-to-date survey of the research underlying the application of this instrument to reading as well as the results of an investigation into the relationships of these personality dimensions with two types of reading tests.

It will be recalled that the present study was concerned with the differential effects of personality dimensions upon reading performance under the conditions of the investigation. Accordingly, Group A and B were divided into high and low subgroups on the basis of the subjects' positions above or below the median (for the norm group) on the permeability (SA) and anxiety (S) scales of the *SA-S Senior Scales.* Performance on Reading Passage II was selected for computation. Results were as follows:

Group	Variable	HIGH N	HIGH Rate	HIGH Comp.	LOW N	LOW Rate	LOW Comp.	Rate	Comp.
A	Anxiety	22	254	6.8	37	276	7.7	22	0.9
	Permeability	30	265	7.3	29	273	7.5	8	0.2
B	Anxiety	23	230	4.0	35	300	5.9	70	1.9
	Permeability	28	261	4.8	30	281	5.4	20	0.6

No significant differences in rate or comprehension between the sub-groupings emerge in Group A. In Group B, on the contrary, the periodic interruptions had a significant disturbing effect on high anxious students in regard to both rate and comprehension as compared to low anxious. There was no significant difference in reading performance between the two permeability subgroups of Group B.

Using the categories described by Smith, *et al*, anxious extraverts in Group B (those falling in Type IV) were particulary affected by the procedure. This finding is in accord with that reported by Sayles. (5) It may be due to the same cause he educes, namely, that when the anxious extravert is put in a position where he feels compelled to exceed, or at least equal his previous performance, he becomes so anxious that his performance suffers markedly.

Summary of conclusions

1. The reading process is significantly impaired by periodic interruptions. Although rate is unchanged, reading comprehension is adversely affected.

2. Length of reading passage does not affect reading performance under the conditions investigated by this study.

3. Periodic interruptions have a significant deterimental effect on the reading performance of students rated as high anxious on the *SA-S Scales*.

Implications

1. Timing procedures which produce periodic interruptions during the reading process should be avoided. Methods of timing reading which minimally interrupt the students should be selected.

2. Length of reading selections used may be varied to suit the plan and objectives of the reading program without adversely affecting reading performance.

3. Either time-limit or amount-limit tests may be used to measure reading performance. One type will produce results comparable to the other type if the tests are equivalent in other respects.

4. Personality dimensions should be taken into account both in testing and in conducting reading improvement programs.

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Student Attitude Toward Reading

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Since 1951 Purdue University has evolved a developmental reading program of considerable size. Know as English 185, this program employs a variety of teaching methods, as well as aids such as films, timed essays, and pacers. To date some 14,000 students have participated in the program. Results obtained with the *Diagnostic Reading Tests,* and the *Iowa Silent Reading Tests,* and Harvard and Princeton reading tests have shown gains in both speed and comprehension when these instruments were used as measures in the course.

Although many tests have been conducted in which the effectiveness of English 185 (Developmental Reading) was evaluated in terms of gains, no attempts have been made to include measures of student attitudes toward reading as an activity. In view of this, and because various staff members of the English Department and the Division of Educational Reference considered such attitudes to be a reasonable concern of the English 185 teaching staff, two experimental attitude questionnaires were developed in 1957-58. One set of 20 items was designed to measure "Attitude toward Reading" while the other set of 20 items was aimed at "Attitude toward English 185," or toward the course itself. The scope of the research on these items was limited to the development of measuring instruments which could be used in a later experiment where attitudes of students taking English 185 would be compared with attitudes of similar students not taking English 185.

After the two sets of attitude questionnaire items were written and criticised by staff members in the English Department and the Division of Educational Reference, they were administered to approxiamtely 500 English 185 students during the final week of the Spring 1958 semester. The data were subjected to an item analysis to identify those items that would best provide meaningful attitude scores. The 10 items in the "Attitude toward Reading" scale and the 10 items in the "Attitude toward English 185" scale having the highest correlations with approximate total score were selected to construct instruments that would measure the attitudes concerned. The research on these scales ended temporarily at this point

in the summer of 1958 before the next step, cross-validation of the item analysis results, could be taken. Thus, it was entirely possible that the 10 "best" items in each scale, based on responses of a sample of students in 1958, might not hold up well with a subsequent group of students. This required checking prior to the conduct of more elaborate research in which these instruments were to be used.

The final items of the "Attitude toward Reading" scale were as follows:

1.	I like to read.	A	UA	UD	D*
2.	Considering all the things I'll have to keep me busy after I finish college, I don't expect to do much reading.	A	UA	UD	D
3.	Reading is one of my favorite pastimes.	A	UA	UD	D
4.	I usually prefer to do things other than reading.	A	UA	UD	D
5.	If I don't have a chance to do a few hours of outside reading each week I feel badly about it.	A	UA	UD	D
6.	I don't like to read.	A	UA	UD	D
7.	I "make time" for outside reading no matter how much work I have to do.	A	UA	UD	D
8.	As far as reading goes, I can take it or leave it.	A	UA	UD	D
9.	Reading is fun.	A	UA	UD	D
10.	I like only one or two kinds of reading material.	A	UA	UD	D

*A—agree; UA—undecided, probably agree; UD—undecided, probably disagree; D-disagree

The final items of the "Attitude toward English 185" scale were as follows:

1.	This course is a waste of time.	A	UA	UD	D
2.	This course should be taken by most Purdue Freshmen.	A	UA	UD	D

3.	The benefits from this course are not worth the effort.	A UA UD D
4.	This course helps students do better work in their other classes.	A UA UD D
5.	There really isn't much to be learned in this course.	A UA UD D
6.	I would suggest this course to many other students.	A UA UD D
7.	I would rather take a course in my major field instead of this one.	A UA UD D
8.	I expect to be a better student as a result of taking this course.	A UA UD D
9.	Had it been possible, I would have stayed out of this course.	A UA UD D
10.	This is one of the most useful courses that a Freshman can take at Purdue.	A UA UD D

It should be noted here that no attempt is made, and none was made with the students, to set limits on the word "reading." The problems involved in attempting such a limitation seem to have no real solution.

Further research in these attitude measuring instruments was conducted in the fall of 1958 and several potentially important variables were examined with a view toward forming a research design for a full scale experimental study in the academic year 1959-60. The objectives were as follows:

1. To cross-validate the instruments discussed above. (This involved administering the items in the "Attitude toward Reading" scale and the "Attitude toward English 185" scale to a new group of students and performing a statistical analysis to determine whether they would provide meaningful scores.)

2. To determine whether signing names by individual students answering the attitude questions would affect their responses. (This was necessary because future research would require having the student sign his questionnaire so that data for correlational purposes, that is, grade point index, could be secured from University records. Naturally, such research would be useless if identification were to cause the student to distort his responses.)

3. To determine the nature of the inter-relationships among several variables, such as reading attitudes, reading speed and comprehension, English proficiency, grade point index, and others, so that future research could incorporate the necessary controls on such variables.

It was assumed that if these objectives were achieved and if the data provided satisfactory solutions to the measurement problems, then an experiment could be conducted in 1959-60 incorporating these solutions.

Methods

The two attitude scales, "Attitude toward Reading" and "Attitude toward English 185", were administered to approximately 700 first-semester freshman students enrolled in English 185 during the last week of the Fall 1958 semester. The questionnaires were administered by graduate assistants under standard conditions. Approximately half of the students were asked to sign their names to the questionnaire and the other half were not. This was done in such a way that both groups were comparable in terms of instructors, academic ability (as measured by *Purdue Placement Tests*) and school of enrollment. Thus, half of each of 24 instructors' students were "assigned" to the anonymous group and half to the identified group. Moreover, each instructor's students were divided so that the groups would have comparable means and standard deviations on the *Purdue Placement Tests* in English and Math. Finally, because the pressures brought to bear on students to take English 185 differ among the schools within the University, the groups also were comprised of comparable proportions of students from each school.

Findings

(1) Internal Consistency Cross-Validation

The "Attitude toward Reading" items produced an internal consistency coefficient of .87 while the "Attitude toward English 185" items produced a coefficient of .90, indicating substantial reliability. This was the desired result and enabled further research in which scores on these instruments were used.

(2) Signing Names to Questionnaires

On the "Attitude toward Reading" scale the identified group had a mean score of 28.35 while the anonymous group's mean score was 27.57. The t-test of this difference showed that the difference probably arose by chance. On the other hand, the identified group's mean score on the "Attitude toward English 185" scale was 32.36 while the anonymous

group's mean score was 30.84. The t-test showed that this difference could have arisen by chance fewer than 5 times in 100. In other words, the results show that signing names had little effect on the English 185 Freshman students' responses to a questionnaire concerned with attitude toward reading. However, it did seem to induce a statistically significant amount of distortion on the attitude toward course items, possibly through fear of reprisal, although assurances were given that the data were to be used for research purposes only. In any event, even though the difference of 1.52 points was statistically significant, practically it did not seem to be significant.

It is noteworthy that the average "Attitude toward Reading" score for the two groups combined was 27.96 while the "Attitude toward English 185" mean score was 31.60. Since each scale had a possible score range of 1 (unfavorable attitude) through 40 points (favorable attitude) it is apparent that both expressions of attitudes were concentrated at the favorable end of the scale.

(3) Correlational Analyses

Many of the relationships among the following variables were investigated: "Attitude toward Reading", "Attitude toward English 185", Purdue Placement Test scores in English and mathematics, reading speed and comprehension at the beginning of the Fall 1958 semester and at the end, and grade point index. A few are discussed here. Before interpreting these findings, however, it is essential to emphasize that they were affected by the extent to which the various measures might have been statistically unreliable. Unfortunately, no reliability data were available on the reading tests used in this study. Therefore, interpretations of the data must be made cautiously.

(1) Among the more interesting findings was that "Attitude toward Reading", beginning reading speed, and beginning reading comprehension were all related to Grade Point Index. The correlation coefficients were .15 and .14, respectively. While these are small values, they were larger than would have occurred by chance. This suggests that insofar as the English 185 course improves reading attitudes, speed and comprehension, it may improve the student's chances for academic success to at least a slight degree.

(2) Another finding is the fact that "Attitude toward Reading" scores were not significantly correlated with "Attitude toward English 185" scores. The correlation coefficient was only .08. This is further evidence that the two attitude scales are substantially individual measures. In other words, in

administering only the "Attitude toward Reading" questionnaire, which was to be done in the next step of the research, it would be fairly certain that attitude toward reading alone would be measured, and not attitude toward the reading course.

(3) The relationship between reading speed and reading comprehension, both at the beginning of the course and at the end, was not statistically significant. The r's were .08 and .10, respectively. This finding seems a bit surprising and has many implications.

(4) Fairly small but statistically significant relationships were found between beginning and ending reading speeds (r=.29) and between beginning and ending comprehension (r=.31). This finding suggests that the English 185 student's beginning reading skills have some, but relatively little bearing on his achievement by the end of the course. This finding agrees with some other research of a similar nature.

The study is being completed during the present semester. During the first week of classes, approximately 600 selected students, half in an experimental group taking English 185 (Developmental Reading) and half in a control group, were given the "Attitude toward Reading" questionnaire plus Test 1, Parts A and B, of the *Iowa Silent Reading Tests*. At the end of the semester both the questionnaire and the reading test will be given again.

Answers to the following questions will be looked for in the analysis of results:

(1) Does English 185 (Developmental Reading) have a positive effect on attitude toward reading?

(2) Do improved attitudes and gains in speed and comprehension go together?

(3) Does English 185 improve reading efficiency as measured by the Iowa Test?

(4) What effect does English 185 have on grade point index?

Research in Reading At The University of Michigan

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The purpose of this paper is to indicate the nature and variety of recent research projects which have been carried out by the Reading Improvement Services of the University of Michigan. Since we wish to illustrate the diversity of projects which may be associated with a college or university reading service, discussion of the projects as such will be limited. Meaningful discussion of each project would necessitate more time and space than seems warranted for the general reader. Any individual who desires specific information concerning any of the activities mentioned herein should write to: Donald E. P. Smith, Chief, Reading Improvement Service, University of Michigan, Ann Arbor, Michigan.

Since research usually originates because of the need to solve problems, and since problems are often peculiar to the setting in which they originate, it seems appropriate to begin with a few remarks concerning the nature of the Reading Improvement Service itself.

ACTIVITIES AND FUNCTION OF THE READING IMPROVEMENT SERVICE

The Reading Improvement Service of the University of Michigan was instituted in 1952 to provide assistance to students who had reading and study problems. The current aims of service, traning, and research have somewhat modified the original activities, yet service to students remains a prime function. The current staff consists of a professional educational psychologist as director, a half-time assistant director, six teaching assistants, who are applicants for the Ph.D. degree in educational or clinical psychology, and a secretary. Service to college students is achieved primarily by means of a seven-week, non-credit, non-tuition course. Each class consists of fifteen to eighteen students who meet twice weekly for one hour periods. Approximately fifty such classes are offered each year. In addition to the classes, another one hundred or two hundred students are tutored individually. Finally, lectures and discussions are carried on by the staff with many student groups, dormitories, fraternities and sororities. In addition to helping college students, the Reading Service provides speakers, for: state meeting, consultants for the public schools, and teachers for adult extension classes in reading improvement.

The scope of operation was expanded a few years ago by the addition of a program of clinical work with children. Between 50 and one hundred receive help each year. While this service is primarily diagnostic, it does include sufficient remediation to determine the correctness of the diagnosis. Following adequate diagnosis, recommendations are made to the schools, physicians, or to other referring agencies, and, when possible, a remedial teacher is recommended.

The diverse activities which are carried on by the Reading Service make it a highly valuable training ground for the doctoral applicants on the staff.

Let us now turn our attention to some of the projects and problems which have arisen and to the ancillary activities which have occurred because of them.

Research and Related Activities

While the initial research activities and lines of exploration were devoted largely to attempts to improve the quality of the college reading classes, more recent projects have been influenced by the childrens' program and problems concerned with the nature of reading disability itself. The discussion which follows is meant to be illustrative: therefore no attempt has been made to list in chronological order or in order of importance, the various activities which have been undertaken. All of these activities have arisen as a result of the 3-fold purpose for research at the University of Michigan Reading Service. These purposes are: 1) to improve instruction in the college reading classes, 2) to provide graduate students with the opportunity to do research, 3) to attack any apparently worthwhile researchable problems related to reading.

A variety of activities arose in conjunction with the college classes in reading improvement. Some students appeared to increase rapidly in skills while others, in spite of intensive effort, were slow in improvement. Personality variables seemed to be important factors in producing these differences. An attempt to determine the effect of personality differences and particularly the effect of anxiety lead to the construction of the SA-S Personality Scales. The SA-S Senior Scales, which can be used with high school and college students, make it possible to assess the relative amounts of anxiety (S-scale-stability) and social-approach (SA scale-similar to introversion-extraversion). Four major categories which have diagnostic and predictive value in college reading classes are utilized. Individuals are described as rigid and anxious, rigid and non-anxious, fluid and anxious, or fluid and non-anxious. In general,

the groups classified as rigid are more methodical and improve more slowly than those classified as fluid. The rigid groups tend to be over-organized while the fluid groups appear to be somewhat disorganized. The use of the SA-S Senior Scales lead to the construction of a comparable test for use with children.

Some of the other projects which were carried out as a result of questions raised by problems met in the college classes were: a study of the reasons for drop-outs in non-credit, non-tuition reading classes, which led to a survey of college reading classes throughout the country; the effect of reading improvement on personality changes as a result of or concomitant with changes in reading ability; the relation of student personality and teaching method to reading improvement; the relation of context clues to concept formation and the best method for teaching the use of context clues; the use and effectiveness of the cloze procedure as a diagnostic and remedial method with particular emphasis on the measurement of comprehension; the effect of medial testing on final test results in rate and comprehension; a follow-up study to determine the relation of reading improvement to subsequent college grades.

One persistent problem in college reading programs is the problem of teaching for rate improvement vs. teaching for general improvement of comprehension.

It is readily apparent that rate and comprehension are complexly inter-related. In addition to attempting to help a student increase his overall rate of reading, the U.M. Reading Improvement Service attempts to provide the student with a more effective means of increasing both his acquisition and retention of subject matter. Modifications of Robinson's SQ3R method of study have been utilized. While it was evident that many students were becoming more efficient, it was felt that perhaps more time should be spent in class on the study techniques and leave the bulk of improvement in rate to the students' lab periods where as much time as desired could be spent with mechanical devices. Thus, an attempt was made to produce a more carefully organized attack on study procedures. A systematic procedure evolved; materials were designed and tested in classes, and these materials were finally compiled and arranged in book form. The book entitled, *Learning to Learn*, is to be published in the spring of 1960.

Some of the most exciting and potentially most important work has arisen in connection with the children's program. Several new areas of research opened up as a result of investigations in this area. Some

of these are still in progress and new projects will undoubtedly arise.

In an attempt to determine the cause of *severe* reading disability, a cooperative venture was undertaken by the Reading Improvement Service, the public schools of Ann Arbor, and the University of Michigan Hospital Pediatrics Clinic. Approximately 700 poor readers and 32 superior readers in grades 3-9 were involved. This study pointed up the need for greater knowledge and attention to reasearch in the areas of neuro-physiology, biochemistry, and endocrinology. The study also played a major role in the formulation of the Synaptic Transmission Theory of Reading Disability. According to this theory, perceptual and cognitive functions may be impaired or otherwise operate inefficiently because of the functioning of two enzymes located at the synapses involved in neural transmission. These enzymes—Acetylcholine (Ach) and Cholinesterase (Che)—must be in balance at a certain level of concentration for effective function of neural processes to occur. According to the theory, the poorest of the poor readers (often called Alexics) are characterized by a balance of Ach and Che at a very low level. On the other hand, superior readers are characterized by a balance at a high level. Too much or too little of either enzyme is posited as the underlying cause of several different kinds of ineffective reading procedure. Apparently, the endocrine glands and anxiety can affect the relations and functions of these chemicals. If so, we might expect to modify, through the use of appropriate medications, the attendant perceptual and cognitive processes which accompany improper functioning of the synapses. Sufficient evidence has been gathered to warrent further investigation of this hypothesis. Some early attempts by the Reading Service to utilize medication including the use of vitamins and multiple medications are reported in Smith-Carrigan, *The Nature of Reading Disability* (Harcourt-Brace, 1959). This book also explains in detail the cooperative study mentioned above and the Synaptic Transmission Theory.

A new statistical technique known as the Coefficient of Profile Similarity, made it possible to analyze the profiles of scores achieved by the poor readers in the Ann Arbor study. Profile analysis may be considerably better means of appraising the reading status and possible underlying physiological causes than examination of individual scores on a battery of tests. A factor analysis of profiles derived in this study is now being carried out.

Because of increased interest in the use of medications with poor readers, another cooperative research enterprise was designed and carried

out. This study attempted to determine the effect of drugs on retarded readers in a state mental hospital. Subjects included children and adolescents aged 10-17, half of whom were designated as an experimental group and half as a control group. The drugs used included Chlorpromazine, Cytomel, Dexedrine and Mecholyl. All of the data have been collected but have not yet been analyzed.

One interesting finding associated with this study occurred approximately one week after the final testing for the project was completed. Twelve of the subjects (those who had been on no medication prior to the study) were used in a one-hour test of the immediate effectiveness of Meprobamate (Miltown). Seven of the twelve were given one 200mg. capsule while the other five were given nothing. One hour after administration of the drug, all twelve were tested with an oral reading test. Scores were compared with those obtained at final testing of the large project. The medication group's scores showed an increase of 9.2 months compared with a gain of 2.5 months for the controls. Because of the small size of the group, no definite conclusions should be drawn. However, the results strongly suggest that Meprobamate may make it possible for a poor reader to demonstrate and use more effectively those skills which he already possesses and which appear to be inaccessible to him because of anxiety or tension.

We may be quite justified in assuming that as more projects utilizing drugs with poor readers are conducted by other researchers, and as increased knowledge is made available by biochemists, neurophysiologists, and pharmacologists, that drug therapy will be added as another of the tools available to the reading specialist.

Because of the many requests for information regarding the establishment of reading classes for high schools, a survey of the status of reading instruction at the high school level in Michigan was carried out. The results confirm what is now known on the national level; there has been a tremendous increase in the number of reading programs both in the high school and in the colleges.

Another survey is now in preparation. This one is concerned with the certification requirements for reading specialists in the several states of the union.

One other project deserves brief mention. The Division of Driver Services of the State of Michigan was concerned about the number of applicants for driver's licenses who failed to pass the written knowledge

test and yet appeared to have adequate knowledge of the rules of the road, if the tests were administered orally. The problem seemed to be the result of inadequate reading ability. The Michigan Society for the Deaf was also quite interested in the problem. Thus, at the request of the Michigan Society for the Deaf, and with the approval of the State Department, a modified knowledge test for operator's license was designed by one of the staff of the Reading Service. The test requires approximately 2nd grade reading ability and has 16 of its 46 questions based on pictures which are part of the test. Final validation is now being carried out. Several other states have already evinced an interest in such a test; thus poor readers throughout the nation may eventually have their problems recognized by others in areas which, at present, make no provision for their limitations.

We will conclude by mentioning a few of the possibilities for future projects, some of which have already been tentatively investigated. The suggestion that reading therapy might be used as a form of psychotherapy or in conjunction with psychotherapy has already been accepted by many who are concerned with reading problems. Another use of reading as a form of therapy appears imminent. One of our staff has been employed at the University of Michigan Summer Speech Camp as a reading instructor. As a result of this work, it appears that reading therapy may have a salutary effect on certain types of speech disorders. A controlled study is being considered to assess the relationship between reading and speech therapy.

Since anxiety or tension appear to be so intimately related with reading disability, investigations attempting to assess the emotional changes of a poor reader before, during, and after he reads might be highly illuminating. A device for recording changes in blood pressure, respiration, and electrodermal response is now part of the mechanical equipment of the Reading Service. Several provocative reseach ideas have arisen so that this device will undoubtedly play some part in future research.

The Synaptic Transmission Theory of reading disability, which is still in its infancy, appears to have much wider applications in other areas of behavior. There appear to be strong suggestions that Ach-Che or something which operates very similarly are implicated in Schizophrenia. Again, in the area of speech disorders, the theory may be useful in shedding some light on the primary cause of stuttering. Perseverative behavior in general seems intimately related to the Ach-Che hypothesis.

Interest in the programming of material for Skinner-type reading machines has led one of the staff to do a dissertation one one aspect of this problem. The project is now nearing completion. If, as some predict, Skinner-type reading machines may cause a basic revolution in education, then the teaching of reading will also undergo tremendous modification. Research in this area bears watching.

While many readers will undoubtedly be disappointed by the paucity of material mentioned which elucidates the details of the studies carried out, the author will deem his purpose satisfied if those who are new to the reading field have gained some additional insights into the nature of research activities of college reading clinics. Finally, it should be said that the author assumes sole responsibility for any errors of omission or commission engendered in this report

1959 Review of Research on College and Non-College Adult Reading

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Consistent with the review of research presented at this Conference last year (5) and the reviews of previous years, the bulk of the articles or reports providing the basis for this year's review has been taken from professional journals or periodicals. Most of these have appeared since the time of preparation for the review last year. The several exceptions are ones that appeared in sources which either were overlooked or were not available at the time of preparation of the last review. The last *Yearbook* of this Conference (8) was also utilized as a source for several reports (as it has been in the past). Treatment of the information contained in the various reports or articles has again been organized under a small number of general and somewhat inclusive headings.

READING PROGRAMS

A considerable number of the articles found relevant for purposes of this review dealt with specific reading programs. The great majority of these had reference to specific college programs (3; 6,; 7; 13; 14; 20; 28; 32; 42; 43; 44; 45; 48; 52;); only a few, relatively, dealt with programs involving non-college adult participants (26; 36; 37; 47; 52; 53). Descriptions, in varying detail, were found in a considerable number of reports, even when the main purpose or intent of a report was not one of description.

Practically all programs reported obtaining indications of advantage or gain for those participating in the respective programs. Procedures used in different programs and methods of evaluating effectiveness of programs varied considerably. Use of standardized reading tests was indicated for a number of programs, with the *Diagnostic Reading Test*, the *Iowa Silent Reading Test*, and the *Cooperative English Test, C2*, being the ones mentioned most frequently. In quite a number of reports the obtained test results were presented in such a way that it was difficult to determine what actual gains had really been made. In a number of

reports, pre- and post-test scores of each of the individuals in a given program were listed. In some, scores were presented in terms of quartiles and medians. In other reports, a detailed discussion of test results was to be found, with, however, no specific indication as to whether or not suggested gains were actually real gains. Use of actual statistical tests for determining significant gains was indicated in only a relatively few reports (3; 6; 11; 32; 53).

Gains in rate scores, but not in comprehension scores, were indicated in a number of reports (6; 11; 26; 32; 52; 53). Gains in comprehension scores but not in rate were indicated for one report (6), while gains in both rate and comprehension scores were indicated in two reports (42; 53). A lack of gain in vocabulary scores or skills was noted for two programs (26; 52); but vocabulary gains were reported for two other programs (32; 53).

Improvement in grade point average was used as a criterion in two studies. A significant improvement of grades at the end of the semester in which a Marquette University group participated in a reading program (and also received group psychotherapy treatment) was noted (32). The improvement in grade-point average was found to have been maintained one year later. Students participating in a reading and study methods program at the University of Kansas were not found to have any better grade averages one year after completion of the program than did students who had not participated in the program (45). Participants were also not found to have returned for the sophmore year in any greater numbers than did the students who had not participated. Gains in study habits were indicated, however.

Results obtained in the few studies in which permanency of gains was actually considered indicated a degree of maintenance of improvement in reading skills (3; 26; 32; 45). The reactions of participants in those programs where such reactions were solicited tended to be, reportedly, predominantly favorable (11; 13; 26; 45; 52). A significantly greater change (positive) in "self-perceived adequacy" of reading ability was found in a group who had participated in a U. S. Air Force program, with the most significant self-perceived outcome of the improvement program having been ability to read more rapidly on the job and for pleasure. The self-estimates of improvement made by participants were found to be significantly less than the actual measured improvement (11). Students' reactions in a program reported by Coffey and Blair (13)

indicated that students had been equally concerned with rate and comprehension skills before participating in the program and that nearly all felt they had been helped greatly by the program and that they had been able to transfer reading skills to their academic studies. The "rough self-evaluations" of University of Maine program participants indicated that considerably less time than had been recommended was put into practice exercises; but all participants felt the program had been very worthwhile and that it should be kept as part of a composition class (52).

Brown and Lauer (6) found speed increases made on exercise materials not significant, but comprehension and "reading efficiency" increases were. When scores obtain with the *Pressey Reading Speed and Comprehension Test* were compared, speed increases were found to be significant; but comprehension increases were not found to be so. To equate problems they felt arose because of inadequacies of the comprehension part of the Pressey test, Brown and Lauer did a second study in which they used only an "efficiency index" for comparisons. They found significant differences between pre- and post-test results and seemed to think that the obtained results justified the use of the "efficiency" index, rate (in words per minute) times the comprehension score (in terms of percent right).

Mullins and Eldridge (36) described a shortened condensed program for "key executives" in industry. The "testing" done in their program was with the *SRA Better Reading Book* 2. Average first performances were compared with averages of "best performances" of students. Tests used in an industrial program reported by Murdick (37) were not clearly identified; but apparently selections from Baker's *Reading Skill* and from Perry and Whitlock's *Selections for Improving Speed and Comprehension* were used as tests. Performance on the first and last tests in Lewis' *How to Read Better and Faster* was used as a criterion of speed gain in a program reported by Weeks (52).

Among the programs in which mechanical devices were not used were ones reported by Smith and Smith (43), by Sullivan (47), and by Tanzola (48). Gains were reported for all programs.

Cortright reported briefly on some of the work with international students at Baylor University (15). Cortright also presented some brief details concerning literacy workshops conducted in two Texas cities (16).

Wheeler and Anderson (53) presented details of reading improvement courses conducted at the University of Western Australia under the auspices of the Adult Education Board.

As the result of his study of the origins of reading improvement programs in American colleges and the development of such programs, Leedy (30) concluded that reading improvement programs are in a state of flexibility with regard to methodology, materials, and procedures at present and that the future missions of reading improvement programs will be far greater than those have been. Among the findings obtained by Miller (35) in his extensive questionnaire survey, with over 200 schools responding, were the following: that reading courses are offered on a non-credit basis in over one half of the schools responding; that twenty to thirty hours of supervised reading practice appeared to be the general practice; that the most popular plan for programs is basic group practice using workbooks for the whole group, with such being supplemented by individual practice with mechanical aids; that tachistoscopes and reading accelerators were the most popular mechanical aids; and that the *Diagnostic Reading Tests*, the *Cooperative English Tests, C2*, and the *Iowa Silent Reading Test* were the most frequently used pre- and post-tests.

Clarke (12) presented a brief description of an experimental freshman English course for "semi-literate" college students at Lyndon (Vermont) Teachers College. A class of forty freshmen was divided into four ability groups. Instructional attention was centered on "creative English," with reading skills receiving specific attention in the lowest group. Except for "how-to-do-it" reading assignments, literature was not a part of the course for this lowest group. (The intent of the reported plan was that students continue in the program until they were "above average" in all phases of the program.) Formal evaluations were not made; but student and faculty reactions were highly favorable. Angus (2) has advanced a plan for basic skills courses in reading and writing rather than the composite "communication skills" courses for under classmen; and she has suggested that the "inoculation of ideas on mass culture" (2:338) might be more appropriate for upper classmen and graduate students and that "fusion" courses "are only legitimate after basic skills are achieved" (2:338).

McDonald, Zolick, and Byrne (32) reported that behavioral observations made and objective test results obtained in an exploratory study

indicated that significant contributions had been made to reading improvement in a group which had been exposed to a series of weekly group psychotherapy sessions as a part of the regular weekly program. The experimental group made better progress than did a control group whose members had been given an extra hour of reading work in lieu of therapy; and the group also made better progress than was found to be the average for various reading improvement sections.

Tests

A number of reports were concerned with tests frequently used in reading or study programs or with tests which have pertinence for such programs. Ahmann, Smith, and Glock (1) found that Brown-Holtzman *Study Skill Habits and Attitudes* scores could be withdrawn from a regression equation used for predicting first semester grade-point averages of a sample of Cornell freshmen without significantly weakening or lessening the prediction efficiency of the equation. They found male overachievers and underachievers not differing significanty with respect to gain scores and rarely differing in terms of responses to individual items. However, they reported finding the discriminating power (between upper and lower groups) of most of the items "quite satisfactory" (1:856). Garcia and Whigham (18) reported a study in which Brown-Holtzman *Study Skill Habits and Attitudes* scores were obtained from a random sample of entering freshmen at Emory University and again near or at the end of the second quarter. They found, in general, only slight differences in predictability of grades or over- and under-achievement in favor of the study habits scores obtained after two quarters of college experience. Metzger (33) reported finding that *Cooperative English Test, C2*, scores could be used to distinguish men most likely to achieve satisfactory first semester grade-point ratios. Chahbazi (9) reported results of an analysis of items relative to study habits found in an orientation inventory developed at Cornell University. Although the correlations between first term grade-point averages and study habits scores obtained with the inventory were found to be low, a number of the study habits items were found to have some predictive value. Among these items were ones related to neglect of courses caused by lack of interest, necessity for studying at home when in high school, extent to which concentration on studies was possible under various conditions, organization skills with regard to note-taking, organization of time, amount students needed to earn while in college, and average number of hours spent in study each week.

Hinton (23) compared *Diagnostic Reading Test* scores of a control group of 132 students in psychology classes with scores of 56 students in reading improvement work. She found Form D scores of the control group to be significantly lower than their Form A scores (Form A having been given at the beginning of the semester, Form D at the end). The increase in speed or rate scores was the only significant increase in the case of the experimental group. Comparison of differences between Form A and Form D scores of the two groups indicated that the "loss" of the experimental group was significantly less than that of the control group except in the case of comprehension scores on the rate selection. Hinton tentatively concluded that Forms A and D of the Diagnostic Reading Tests "are not equivalent and therefore no conclusions can be drawn as to whether or not the experimental group, those who received reading improvement training, either gained or lost" (23:62).

Raygor, Vance, and Adcock (40) have reported the development of a *Diagnostic Reading Inventory* on the basis of self-descriptive statements collected from students at the University of Minnesota. A comparison of responses of reading clinic cases with those of non-reading clinic cases indicated a difference in content as well as a difference in emotional tone and that statements with emotional or attitudinal contents were predictive of measured reading ability. Inverse cluster analysis procedures also identified groups with similar self-descriptions and prompted further work on the nature of symptomatic syndromes identified by the cluster analysis program.

Rankin (39) presented a somewhat detailed discussion of the cloze procedure, and various measurement possibilities with this procedure, at this Conference last year. A rather extensive treatment and summary of the literature concerning rigidity has been presented by Chown (10) and should be a rather useful contribution for those working in the area of reading flexibility.

Haberland (21) compared total scores of three listening tests (Brown-Carlsen, Michigan State College, and Stephens College) with subtest scores of various aptitude, reading, and personality tests. Scores of Hope College freshmen in regular freshmen English classes were compared with those of freshmen in a reading improvement course. Numerous relationships were found, including a marked relationship between intelligence test measures and listening ability and between "vigorous" and "reflective" measures found in a personality scale and listening ability. However, the

various tests of listening ability were not found to agree closely with one another.

Belai (4) reported finding *ACE Psychological Examination* scores and "total" scores on the *Cooperative English Test, C2*, both giving corresponding evidence of scholastic ability of entering freshmen at Our Lady of Cincinnati College. "Excellent correlations" were also reported to have been found with *Graduate Record Examination* results.

Another simplification of the Allport-Vernon *Study of Values* has also been reported (17). Details concerning a pilot study conducted by investigators associated with the Curtis Publishing Company were reported. Indications of the validity of the simplified revision (intended to aid in magazine readership resarch) were reported to have been obtained.

Factors Influencing Reading and Study Skills

A number of reports contained information pertinent with respect to factors having an influence upon reading and study skills. A number of investigators were concerned with, or obtained indications of, the role of various personality factors. Glass (19), comparing an experimental group reading "above expectancy" with a group reading "below expectancy" (with each group participating in a reading improvement course) found the "drive" factor not significantly related to reading rate improvement. He found "compulsiveness" to be one of three predicted variables playing a role in determining the amount of reading improvement; but the difference was not sufficient to justify using "compulsiveness" scores or estimates for screening purposes with regard to rate programs. Hill (22) found *Minnesota Multiphasic Personality Inventory* estimates to be among the [illegible]e non-instructional variables which discriminated significantly between a group of university freshmen with "adequate comprehension" and a group with "deficient comprehension". Hill also found various measures of reading sub-skills to discriminate between the two groups. "Vocabulary", "inference of tone and intent," and "identification of idea relationship" skills were found to contribute most heavily to a multiple discrimination. Michel (34) investigated the effect of non-intellectual dimensions of "functioning personality" (defined in terms of study habits and attitudes, manifest needs, and modes of reaction to stress) on improvement of reading rate and comprehension scores of 70 freshmen placed in advanced sections of a volunteer reading improvement program. The seventy subjects in Michel's study were divided into "improvement",

"non-improvement", and "attrition" groups. He found significant differences among certain manifest need variables and types of performance, between emotive reaction to stress and type of performance, and distinct patterns of manifest need and emotive reaction to stress.

Raygor (39) investigated personality changes occuring concomitantly with changes in basic skills in a reading improvement program. The subjects studied were classified in terms of emotional "stability" and "permeability." Raygor found measurable personality changes taking place, but with great variability in results obtained. Personality changes appeared to be in the direction of decreasing anxiety and increasing emotional stability and self-confidence; but changes did not appear to be related to the importance of reading for college success, as perceived by the subject, or to actual reading skill gains. In another study reported by Raygor and others (4) (discussed earlier in this paper), self-descriptive statements of reading clinic students were found to differ from those of non-clinic students in terms of content and emotional tone, with the latter being found predictive of actual reading ability. Analysis of relationships between *Minnesota Multiphasic Personality Inventory* scores and gains in reading skills and study habits of the University of Kansas students involved in Sternitzke's study (45) indicated no significant patterns except a positive relationship between masculinity of interest and improvement of reading speed and study habits.

Kasdon investigated the early background of 50 "fastest comprehenders" selected from freshmen in various colleges in the Los Angeles area (25). Data obtained did not lend definite support to the idea that giftedness in reading could be identified early in the life of a child. The obtained data were interpreted as indicating a need for teachers to provide ample opportunity for superior readers to read a great deal and to foster an interest in books and that the child's family played a more important part in fostering interest in the early years than did the school. Information obtained with prepared check lists from over 1,000 Southern University freshmen indicated that the freshmen were most seriously concerned over failure of courses (24); the most serious concern of their counselors was the slow reading habits of the freshmen. Kittel (27) studied groups of State College of Washington freshmen in terms of residence classification and speed of comprehension scores (*Cooperative English Test, C2*). He found no significant differences in intelligence (*ACE Psychological Examination*) among the three groups. In general, rural freshmen as a

group tended to make reading scores comparable to those of the metropolitan group. The moderate group was found to be significantly superior to the metropolitan and rural groups on speed of comprehension scores but not on vocabulary scores. Risher (41) compared 66 ultimately graduating business students with a group of non-graduating freshmen with respect to various test and inventory scores. Graduating freshmen were found to be significantly superior with respect to mean ACE "Q", "L", and "Total" scores and *Cooperative English Test, C2*, scores. Comparison of *Bell Adjustment Inventory* scores showed no statistically differentiating performance patterns in any area for either men or women.

Twenty-six per cent of the students enrolled in remedial rhetoric at the University of Illinois were found to have been graduated from high school in the top half of their graduating classes. Seventy-nine per cent of the total first semester freshmen enrolled in freshmen rhetoric was found to come from the upper forty-one per cent of their high school classes; forty-six per cent were found to come from the upper one-fourth (54).

Miscellaneous

Laycock (29) has presented a brief description of the basic design and the materials required for inexpensive construction of a "viewer". This device may be of considerable use to those who make extensive study of eye movement records.

In a study involving over 400 college freshmen, Marksheffel (31) found no significant differences between high and low spelling achievement groups with respect to auditory discrimination (as measured by a test designed by the investigator). He found significant relationships between auditory discrimination and intelligence for the total group and for the males in the group, but not for the females. However, no significant sex differences with respect to intelligence and spelling were found.

Stolurow and Newman (46) reduced to a more manageable form the relatively extensive intercorrelation matrix originally prepared and used by Gray and Leary in their early work on readability. The revised matrix was then submitted to a factor analysis. A somewhat detailed discussion relative to implications of the resulting findings for development of new readability "yardsticks" and for reading comprehension tests was presented.

Thayer and Pronko have reported two of their investigations of

various possible influences upon imagery and conceptualization of readers (49;50). Results obtained in one study (49) suggested that the reader's interpretation in an ambiguous reading situation is definitely influenced by the indicated source of the fiction passage in which the situation is presented. In another study (50), the reader's interpretation, imagery, and conceptualization were found to be influenced by the introduction of controversial and moral issues and by biases or affective dispositions of readers.

A study at the State University of Iowa, in which some enrollees in communication skills courses were to view kinescopes of lectures and demonstrations while others were to learn by conventional methods, was briefly reported at a University of Michigan conference last summer (51). Details given were extremely meager; but the study apparently had not yet been completed. Reported preliminary reactions of students appeared to be favorable; but preliminary faculty reactions reportedly tended to be negative.

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Reading Tests and College Performance

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PURPOSE

For the past few years, I have been vitally interested in determining which students in each incoming freshman class will encounter difficulty with their courses in college. Various screening methods were tried. These included the *College Entrance Examination Board* Verbal scores, the Reading Section of the *Ohio State University Psychological Test* and the *Davis Reading Test*. Various correlation studies were made to determine which of these three screening tests is the best to predict the students' performance in college courses involving great amounts of reading. This paper will present the results of these correlation studies and the implication of these results, *as I see them*.

METHOD

Two incoming freshman classes at Lafayette were chosen. This is a men's college with an enrollment of approximately 1500. It is situated in a semi-industrial area within 100 miles of New York City. It draws students from all over the East, some western states and foreign countries. Only the native born American students are included in this study.

In the class of 1961, there were 393 such students on whom we had complete data. These students had taken the College Board Verbal Test in December of the year preceding admission. Upon arrival at college they were given the reading section of the Ohio Psychological Test, Form 25. This is an untimed test composed of short paragraphs from various college textbooks with questions on each paragraph. Pearson product-moment correlations between the raw scores on this test and the scores on the College Board Verbal Test were computed. In February, two further correlation studies were made: (1) between the College Board Verbal scores and the grades in Religion: and (2) between the Reading scores and the Religion grades. Religion was chosen because it is required of all freshmen, because it involved fairly large amounts of both textbook and literary reading, and because the grades in Religion roughly follow a normal curve. In these February correlation studies *no* students were included who had been enrolled in the Reading and Study Course, for their scores might have distorted the results.

In the class of 1962 there were 354 native-born American students for whom we had complete data. This class had also taken the College Board Verbal Aptitude Test in December of the year preceding admission. Upon arrival at Lafayette they were given the relatively new *Davis Reading Test*, Form A. This is a timed test composed of short passages from textbooks, speeches, news articles, and stories with questions on the factual content. Again the College Board Verbal scores were correlated with the Davis Reading scores. In February, the first term grades in Religion were correlated with both the College Board scores and the reading scores. Again, those students in the Reading and Study Course were left out of the second correlation study.

Results

The obtained correlations involving the Class of 1961 were as follows:

1. College Board Verbal scores vs. Ohio Psychological Test Reading scores .59 (P.E.=.02)
2. College Board Verbal scores vs. mid-year Religion grades .43 (P.E.=.02)
3. Ohio Psychological Test Reading scores vs. mid-year Religion grades .30 (P.E.=.03)

The obtained correlations involving the Class of 1962 were as follows:

1. College Board Verbal scores vs. Davis Reading Test scores .60 (P.E.=.03)
2. College Board Verbal scores vs. mid-year Religion grades .42 (P.E.=.02)
3. Davis Reading Test Scores vs. mid-year Religion grades .28 (P.E.=.03)

Implications

The first thing which is apparent is that the correlations of the College Board Verbal scores with the Reading scores on both tests are fairly close. A study of the scattergram on which the correlations are based shows particularly close relationships when the College Board scores are under 450 or over 650. In the first case, the student is almost certain to be a poor reader, and in the second case the student is most certainly a good reader. It is in the vast area between 450 and 650 where many students fall that it is impossible to predict a student's reading ability. Some further testing for individuals whose College Board scores lies between 450 and 650 is certainly indicated.

Immediately one might think a reading test would be ideal to sort out the students who can be expected to encounter difficulty in their college courses. However, in view of the low correlation between reading test scores and college grades, we must question whether such test are valid indicators of the quality of work in college courses. A study of the scattergrams on both the Davis and Ohio reading tests shows, for example, that the grade of 80 might as readily be made by a student in the lowest reading decile as in the highest. Therefore, these reading test scores are far from definitive.

This is no indictment of the Davis or the Ohio Test. These were chosen as typical available reading tests. In view of the similar correlation figures of .30 and .28 between scores obtained with these two reading tests it seems likely that correlation studies using other reading tests would give similar results. Admittedly, this is not *proved* by this study. Further correlation studies should be made. However, this study includes the records of 747 representative college students over a period of two years and certainly can be taken as an indication of a probable trend.

Perhaps the rather negative results of this study point up most clearly the need for a new and rather different type of reading test. Such a test, in my opinion, should be constructed along the following lines:

1. It should consist of relatively lengthy passages.
2. It should include some textbook material with headings, and some material of literary style.
3. It should include some questions on comprehension of main ideas and structure and some questions on recall.
4. Somewhere on the test, the student should be obligated to show that he can express in his own words the ideas he has gleamed from the text.
5. Several parts of the test should be closely timed so that the student's versatility of reading rate can be estimated.

Admittedly such a test would be difficult to score on an IBM machine: but it should tell us much about how a student will perform in his reading courses in college. On occasion I have used such a test on an informal basis in individual conferences and I feel that I know the student's reading needs much better than when I use the presently available reading tests.

SUMMARY

These correlation studies of the College Board Verbal scores, the

Ohio Psychological Test Reading scores, the Davis Reading Test scores, and the Religion mid-year grades were undertaken to determine which of these tests is best in predicting a student's performance in college courses. The correlations between the College Board Verbal scores and college performance were slightly higher than the correlations between reading test scores and college performance. However, since neither set of correlations was significantly high, it seems desirable to construct a different type of reading test from which college performance could better be predicted.

Improving Reading In The Subject Matter Areas

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President Dobbs of Princeton University has been reported as saying that as a means of recording and transmitting the systematic bodies of exact knowledge with which most of education is concerned, the book has no rival, and yet studies show that only about 17 to 25 per cent of the adult population is likely to have read as much as a single book in the past month. All leaders in the liberal arts and sciences are aware of the importance of recent investigations in their fields. They are shocked and disturbed by the fact that their students are unable to make effective use of textbooks and library resources. Consequently, many are beginning to assume responsibility for the improvement of reading in their subject matter areas. In beginning a discussion of this topic, it may be well to make immediately a number of assumptions and then discuss each in some detail. These postulates are:

Each teacher in the content fields is responsible for developing background and mental content in his area of concentration.

Each teacher should be expected to develop the special and technical vocabulary of his subject.

Each teacher in the content fields should show and demonstrate to his students methods of chapter reading and especially how they may be applied in his area.

Each teacher should be concerned with the selection and adjustment of materials to the reading levels of his students.

Each teacher should develop an awareness of problems in his field and an understanding of the many ways by which they can be solved.

The approach to reading improvement in the content areas should be developmental in nature and from the standpoint of the class room teacher in no sense remedial or corrective.

Three aspects of reading are essential to a mastery of subject matter in the content fields. It is necessary for the student to *identify, interpret,*

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and *evaluate* words and concepts. In order to achieve these skills, mental content resulting from experience is a fundamental requirement. In other words, the student must contribute from his own background as he attempts to identify, interpret, and evaluate ideas presented in his textbooks. What he perceives is dependent upon what he has to present. For example, a student reads from a textbook in psychology this statement, "The standard deviation is less affected by sampling errors than is the quartile or the mean deviation and is a more stable measure of dispersion." If the student is to identify, interpret, and evaluate the ideas expressed in this sentence, mental content in the field of statistics is required. Furthermore, in this situation the teacher can aid his students in building up mental content by demonstrations and class discussions. Terms can be illustrated and defined. Distributions of scores can be tabulated and computations actually worked out. Drawings can be made and visual equipment introduced. In this process, mental content is being increased and vacabularies are being enlarged. The instructor is not only teaching elementary statistics but is building background for effective reading as well.

In every subject matter field there are words and technical terms which are especially significant in that particular area of specialization. The alert teacher in any field can acquaint his students with the various forms of *contextual clues* which, when thoroughly appreciated, can aid the student in determining meaning that can be verified later by the *use of the dictionary*. Teachers can demonstrate the usefulness of *structural analysis* to their students for in many of the sciences, such as biology, physiology, and medicine, meaning can generally be determined from a knowledge of prefixes, stems, and suffixes. In the fields of English and communications, the Minnesota Efficient Reading Series which consists of fourteen key words is one of the most stimulating procedures for increasing vocabulary. A study of these fourteen master words makes it possible for the student to use available prefixes, stems, and suffixes in becoming familiar with the meaning of over fourteen thousand common English words. Spelling vocabularies can be developed by students if their teachers are willing to explain and demonstrate a modification of the methods set forth by Fernald, Betts, and others which make use of visual, auditory, kinesthetic, and tactual imagery. Surely, misspelled words should not be tolerated by teachers in any field of academic endeavor for such behavior can be symptomatic of illiteracy.

Teachers in the content fields can demonstrate how chapter reading may be done effectively. Robinson, Staton, Carter and McGinnis have

shown how basic reading skills may be integrated in the process and how students may apply the procedure in any subject matter field. Although Simpson has focused her attention upon the improvement of reading at the high school level, most of her suggestions are applicable for teachers of college classes. The procedures recommended by writers on this subject stress the importance of previewing to identify main ideas, reading for the purpose of answering questions, recording of responses, and testing for validity of information. These approaches to chapter reading are functional in nature and aid the student in accomplishing his purpose in reading. There is no emphasis on exercises and drills which many mature students resent as being unnecessary and an added burden.

In our secondary schools, colleges and universities the range of reading performance is most significant. College teachers report the grade scores of their students range from fifth grade to thirteenth grade, inclusive. Obviously, the instructor must be concerned with the selection and adjustment of materials to the reading levels of his students. In selecting texts and materials for supplementary reading, vocabularies of technical and nontechnical words should be considered. Furthermore, the teacher should take into account content, clarity, style of writing, organization, variety of illustrations, value of guided activities, and provisions for individual differences. Generally a textbook with a glossary should be given preference over a similar book without one, providing they are equal in other respects. Mallison suggests several factors that should be considered in the selection of textbooks in the field of science which may be helpful to teachers in other content fields. In most areas of concentration, materials written simply and directly are available. Surely, these should be chosen to develop understanding and to challenge the student rather than to emphasize learning as merely an accumulation of facts.

In the modern world, the individual is confronted with many unsolved problems and his success or failure is dependent upon his recognition and solution of these problems. Teachers in the different areas of specialization can make their students more conscious of these problems and the various approaches to their solution. The student should be encouraged to ask questions and seek out his own answers. Some teachers may want to discuss the relationship between learning, thinking, and problem solving. Some may wish to demonstrate how to read effectively materials in the field of mathematics and science. Forms of problem solving can be shown and experimental techniques actually demonstrated. Students can be made aware of some difficulties encountered in problem solving such as hasty conclusions, preconceived ideas, and emotional bias. They can

be warned against mistaking relationship for cause and confusing facts with inferences. Teachers can make clear the fact that rate of reading must be adjusted in accordance with the nature and difficulty of the materials to be read. The merits of critical listening and reading can be stressed and evidences of cloudy thinking pointed out.

Teachers in the content fields are not prepared to do corrective or remedial reading. They have neither the training, time, nor facilities for such measures. They can, instead of projecting the blame upon others, accept their students as they are and actually aid them in developing basic reading skills essential to academic success. Each teacher can show his students how to read and study more effectively as the individual prepares for the work of the class. The student is able to see the value of such instruction and consequently it is more apt to become functional. It is becoming more and more apparent that high schools and institutions of higher learning are making provision for remedial and corrective treatment of those students with marked and significant deficiencies in reading. These cases are not the responsibility of the classroom teacher.

Many teachers in the subject matter fields report that they are unprepared for a developmental approach to the problem of improving the reading skills of their students. This may be true but yet the difficulty is not insurmountable, for many sources of information are available for teachers at both secondary and college levels. Lack of sufficient background for the developmental teaching of reading on the part of secondary teachers has implications for administrators in schools of education for many of their students are asking for aid in the deveopment of work-study skills. Students should know that they can improve their reading performance and that the responsibility for doing so rests with them. The well-informed and enthusiastic teacher, however, is essential to their success. Automated teaching is not yet the answer.

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Vocabulary Development For The Mature Student

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English is the richest language spoken by man, both in terms of the number of symbols or words it possesses and in terms of its flexibility in meeting new situations and new concepts. The unabridged Webster's contains something over 600,000 words. Today's newspaper is likely to contain the following words; satellite, atomic reactor, heat pump, stereophonic high fidelity, polyster, dynel, orlon, velcron, and sputnik. Some of these are newly coined words; some are old words recently applied to new concepts; and one, at least, is a recent import. Just ten years ago not one of these words would have been understood in the sense that we understand it today.

These are the strengths of English as a language—it has more symbols than any other and it can fit new symbols or old to new concepts almost immediately. Together with its powerful ally, the mass media of communication, a symbol can be fitted to a new concept, product, or procedure and be a part of the common speech within days. Because the English language contains so many symbols and is so flexible, it a communication tool capable of exact, precise transmission of meaning.

We are teachers. Do we teach; or do we instruct, educate, edify, school, tutor, cram, grind, prime, coach, enlighten, inform, direct, guide, inculcate, infuse, instill, imbue, impregnate, implant, disseminate, propagate, expound, interpret, lecture, hold forth, preach, sermonize, moralize, train, discipline, form, ground, prepare, qualify, drill, exercise, practice, familiarize with, inure, initiate, explain, define, construe, translate, render, decipher, make out, unravel, disentangle, solve, elucidate, exemplify, unfold, annotate, or graduate? Some one of these 57 verbs or verb phrases is a more precise description of the teaching task that we may be doing at some particular moment than any other.

I have said that the English language is a communication tool capable of exact transmission of meaning. The tragedy is that so few of us and so few of our students are capable of using our language to communicate exactly. Instead of using the particular tool uniquely pertinent to the communication task, we make do with a very few multi-purpose tool

words. We, in effect, use a chisel for a plane or a high-heeled shoe for a hammer. We may ruin the shoe and we certainly do not hammer very effectively. We ruin words and fail to communicate effectively.

The lack that renders so many of us ineffective communicants, the gap in our education, is in the realm of vocabulary. However, it is not, necessarily, a paucity of total vocabulary. It is more apt to be a lack of use of the vocabulary we possess. I read just a moment ago 57 words which each describe some aspect of the teaching process. Probably, if I pronounced them all correctly—and I'm not sure I did—, no one of them sounded strange to you. Each of them was in your understanding vocabulary.

We are mistaken if we talk about vocabulary as though it were a unitary thing. It is not. We have, in fact, at least four vocabularies: a speaking vocabulary, a listening vocabulary, a writing vocabulary, and a reading vocabulary. Some experts postualte a potential vocabulary, meaning those words which we might not know but would know immediately if we met them in context. A *spanner,* for example, very quickly becomes a wrench-like tool when we read that the mechanic used his spanner to tighten the bolt.

Estimates vary tremendously as to the sizes of these vocabularies; but they do indicate agreement on the basic concept that the relative sizes vary tremendously. Shakespeare's total writing include some 15,000 different words. The Thorndike-Lorge counts found that fewer than 29,000 words included those used at least once per four-and-one-half million running words of literary output. Thirty thousand different words included all those used four times or more in eighteen million running words.

Ernest Horn counted the words used by adults in various kinds of writing. He found 36,373 different words in over five million running words. His list of the 10,000 words used most frequently includes all words with a frequency of 15 or more. He estimates that only three to four thousand words account for about 98 per cent of all the written language of adults.

The Rinsland study of the writing vocabulary of children yielded very similar findings: 25,632 different words in 6,000,000 running words. Neither study indicated that the findings included the total written language adults or children could use. They report simply the written words they found used.

We have fewer counts of oral vocabulary usage. Those that exist are primarily of children's oral language. They indicate a similar situation.

Estimates of the understanding vocabularies of children and adults vary tremendously according to the techniques used to measure understanding vocabulary. Variations are possible in the selection of the base for the sample; the 10,000 words most frequently used or the total 650,000 words in the language? Variations are possible in the definition used for knowing a word. Does one know a word when one can define it, use it in a sentence, or pick the best of four alternative definitions?

Estimates secured through varying techniques range from a low of about 25,000 to a high of 100,000 as the average understanding vocabulary of a high school senior. Estimates for a six-year-old child range from 2500 to 23,700. The range of understanding vocabulary possessed by individuals is enormous. The Mary K. Smith study of the vocabulary of six-year-olds showed a range from 6000 words to 48,800. Her study showed the range in twelfth grade to be 36,700 to 136,500. Her average for the six-year-olds was 23,700. Shakespeare used a total of only 15,000 different words in all his writing. Of course not all Shakespeare's 15,000 would be in the average six-year-olds 23,700 words. In the higher ranges, vocabularies tend to become quite specialized according to the interests, hobbies, occupations or specialties of the individual.

One of the more startling aspects of the M. K. Smith study is the fact that the top for the six-year-olds was 48,800 while the low for the twelfth-graders was 36,700. In other words the more able of the first graders knew more words than the lowest of the high school seniors. That this should be is occasion for interesting conjecture.

More important to us is the very evident conclusion that most of us know and understand many more words than we write or speak. It seems quite clear from the studies that we have the tools to communicate very efficiently and precisely but that we attempt communication with very limited use of the tools. We are in the position of the amateur photographer who buys elaborate equipment but continues to take pictures with his Brownie, or the woman who buys an elaborate stove with a complicated automatic timer and refuses to use it. We possess the equipment, the tools, but we are reluctant to use them. We prefer to use words we are comfortable with—words we can pronounce or spell and be sure we are correct. We bungle the task of communication because we prefer to use the comfortable, all-purpose, tool rather than the one specific to the task.

Basically there are only three ways to increase vocabulary:

a. Learning new terms to describe known or new experiences,

b. Learning new uses or meanings for word-symbols already known, and

c. Moving word symbols from the understanding vocabulary to the speaking and writing vocabularies.

For the mature, reasonably well-educated person, there exist few opportunities for learning new terms in the normal course of events. It is a rare experience when one can say "I learned a new word today," because generally our work, and our interests, follow the same paths. Within these areas we already understand the words we encounter. Our best chance for learning new words is to gain a new interest or explore a slightly different aspect of our work, or mix with a new circle of friends. (Incidentally, one of the quickest ways to uncover whole new vocabularies is to pick up hobby magazines in the neighborhood drugstore. These exist for practically every hobby known to man; photography, woodworking, electronics, needlework, philately, numismatics, and even, perhaps, bee-keeping.)

My point as far as vocabulary is concerned is that developing new vocabulary for a mature adult is a spasmodic thing occuring mainly as there is a real change in his life. Normal conduct of our lives embodies a routine for which we know the vocabulary.

The second way listed for development of vacabulary involves learning new meanings for words already counted in our vocabularies. Then English language contains many words with as many as 8 to 12 different uses. The simple word *train,* for example, can mean train of a dress, a railroad train, a retinue, a series of thoughts; it can mean to train a dog, or a plant, or a child; and so on. The mature individual needs to develop, or generally already has developed, a sort of sixth sense which alerts him to a new use of a word as he encounters it. I'll return to this point later. We in education have a particular need for being conscious of new meanings for old words because probably in io other profession or occupation do we do so much vocabulary shifting as we do in education. We have developed "Pedaguese" to the status of a fine art. Every time some visionary develops what he considers to be a new idea he develops at the same moment new terminology. For example, he *conceives* something. That something at that moment is a *conception.* Later it should be termed a *concept* because *conception* is properly applied only to the result of

conceiving during the infancy of the concept. However, in "Pedaguese" this distinction is lost because we prefer *conception* to *concept*—it has one more syllable. Then, in retrospect, the process of developing this new idea seems far too important to be described just as *conceiving;* so the innovater uses the coined term, *conceptualize.* This has five syllables rather than the two of *conceive;* so it fits beautifully into "Pedaguese."

We educators, or educationists, or educationalists, should take steps to clean house, to restrict, "Pedaguese," else we become completely incomprehensible to the layman. We have enough difficulty communicating anyway without the added difficulty of "Pedaguese." However, "Pedaguese" does illustrate the point that we can add to our vocabulary by learning new meanings or different meanings for words already present and understood in another sense.

But this method, too, is of limited usefulness for the mature, reasonably well-educated person. While important when it occurs, the frequency of occurrence will be small unless we change our interests, our occupational focus, or our friends.

It is the third way, the development of speaking or writing vocabularies from those words already present in our nuderstanding vocabulary, that the greatest chance for developing a more effective vocabulary exists. If the estimates quoted earlier indicate the true situation, the average person has at his disposal five to ten times the number of words he uses when he writes or speaks. This vast backlog consists of many more words than the mature student can possibly learn by either of the other two methods of vocabulary development.

The problem is to get this vast backlog into the fore where it becomes instantly available for use. Why do certain words which we know and understand get pushed back in our consciousness so that they are never used? A simple explanation is that we don't speak them because we are afraid we can't pronounce them correctly and that we don't write them because we are unsure of the spelling. The remedy for this condition is obvious—learning to pronounce and learning to spell those words. Other possible causes for failure to use the vocabulary we possess include the rather smug statement that others wouldn't understand if we used such and such a word. This mythical audience understands *shovel* only when one says *shovel* whereas you and I would know that I meant a *spade*. This argument is as rediculous as it is smug. The chances are excellent that if the audience understands the concepts they will understand the correct terminology for those concepts. In fact communication

is more efficient when word choice is precise than it is when the words chosen are those multi-purpose words which demand that the listener sort out the meaning. Some individuals argue for limited vocabulary in the name of simplicity and plain talk. While none argues against simplicity in writing, it can be overdone to the point at which communication is quite ineffective. Simplicity in writing means expression ideas so precisely that there can be no misnterpretation of meaning. To insure this, it is necessary to select that word which symbolizes a given concept and no other. Our multi-meaning words require supplementary words which limit their meaning to the precise meaning we are expressing else the listener or reader makes the wrong choice. Simplicity and clarity in writing are achieved by using the right words to express an idea, an object or an action, not by limiting the speaking or writing to prescribed lists of words of extremely high frequency.

The important, the effective, way to develop vocabulary is to make of it a tool which can be used to communicate exactly and precisely with a minimum chance for error. This is a tremendous and challenging task. It requires study, open mindedness, and care. There are certain requisities, namely consciousness of vocabulary and a vocabulary conscience, a knowledge of word sources and the ability to use them, and willingness and eagerness to work over and examine word choices. The problem is mainly one of developing a habit and an attitude. The key words are vocabulary consciousness and vocabulary conscience.

By vocabulary consciousness I mean an awareness of the facts of the English language as we know them, a knowledge of the importance of precise word choice and a real understanding of the necessities for efficient communication. These factors are of course different in oral and written language. Oral communication is extemporanous and leaves us little time for working over word choice. Oral communication does give us the advantage of second thought—of being able to review and restate—which is, of course, lost to us in written communication.

It is in written language that habits of precise word choice can best be built because there is time to review, to edit, and to compare the effectiveness of one word against another. It is here we might build the skill of source use and the habit of word choice. The dictionary always has been and will continue to be the major source of words. Its use for the mature student tends to be expanded beyond spelling to learning precise meaning including word derivations. We need to teach the dozens of words with multiple meanings and demonstrate the importance of using the simplest, most precise word we can find. We need to teach that there are areas

of disagreement in dictionaries and that one needs to know the basic pattern of different dictionaries.

We need to develop more effective use of guides to special uses of words—the glossaries, or keys to jargon, available in the content areas, for example. We need to develop facility in the use of various word finders the thesaurus, and guides to synonyms and antonyms, for evample. You will recognize, of course, that the thesaurus was the source of my 57 classifications of educate.

I used another term earlier, vocabulary conscience. I am bending the meaning of conscience to use it for the concept I hold. I wanted a word which meant a little more than consciousness since I want the mature student to be constantly aware of the importance of vocabulary choice. I want him to feel a real responsibility for monitoring his own word use. A student with a vocabulary conscience is constantly on the alert for new words, new uses of old words, and changing meanings of words. He is quick to use these new words and make them his own. He has taught himself the mechanics of learning to spell new words to preclude that as a barrier to his use of a word. The student with a vocabulary conscience loves words as a good craftsman loves his tools. He takes pride in using the right tool for the specific task and is pained by the misuse of words. He is pained by the essentially false technique of the advertising copy writer who uses words solely for emotional impact. He, himself, is able to withstand the emotional impact of such phrases as "the wonderful world of auto-dynamics," "the hidden danger zone," and the other too-common catch phrases.

The mature student maintains, by careful addition, deletion, and pruning, the tremendous understanding vocabulary he possesses. He adds to his vocabulary by learning new words and by learning new meanings for old words. Most important of all, he insures that his stock of words is available for use in all phases of communication.

Similarities and Differences in College and "Adult" Reading Programs

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This is basically a summary of a symposium participated in by the authors, discussion leaders, and members of the audience who represented both college and adult training institutions at the ninth annual meeting of the National Reading Conference.

There is great variability in both college reading programs and in those offered in industry, government, evening schools, etc. that we have called "Adult Reading Programs." This insures that there will be considerable overlaping in objectives and techniques of these two types of programs.

Differences in student characteristics:

Differences arise from the fact that adult groups are usually older, have broader experiences, and have more specific ideas about the kind of reading they do. The older group in these adult programs has often been away from classroom learning situations and testing procedures. There is a greater chance of a complicating problem such as poor vision, hearing problems, and slow reaction time. In addition, the adult groups often consist of people who work together and they can be threatened by competing with their subordinates and peers to a degree far exceeding the threat college students feel from the competition of their classmates.

While the students in "adult" programs often are concerned about detailed comprehension and retention, the college student has perhaps greater orientation toward study time reading and preparing for later tests.

In terms of attitudes, the adult student tends to be more critical, more rigidly attached to his present reading techniques, and more impatient with the time that must be given to training. He will not work unless highly motivated but may be more enthusiastic than college stu-

dents, some of whom will work in a half hearted fashion but without complaint.

Student Similarities. In most other respects, the students in the two types of programs are similar. Both groups tend to be heterogeneous with respect to reading skills. Both the college student and the student in adult programs may feel that they can not get all of their reading finished and that they need to read faster and at the same time may desire improvement in detailed retention of technical material. Both groups may be participating in the program because of their own desire or because of outside pressure.

Programs are becoming more similar. While the adult programs formerly emphasized rate improvement to be concerned with multiple objectives built around the concept of reading in different ways to suit the different purposes of the reading.

Rate improvement is still a major part of both programs, but the emphasis today is on flexibly adjusting rate to fit the difficulty of the material and the reader's purpose.

Methods of survey reading or skimming are stressed in both areas along with the skills of locating information without complete reading.

Intensive reading for detailed understanding and retention is a part of courses in both areas but perhaps is more heavily emphasized in the college programs.

Vocabulary improvement and word attack still used to be almost limited to college programs. However, with the recognition that many new words come into an adult's reading because of job change, technical advances, or poor basic vocabulary this type of training has become prevalent in adult programs.

Comprehension improvement is paid lip service in both types of programs and there is considerable variability in the amount of time and the type of work that is done within the college programs or within the adult programs.

While critical or evaluative reading has been one of the less frequent offerings in either type of programs, both are increasing in the attention paid to ths area.

Many reading specialists, while applauding the broadening of course objectives, caution that less time and interfence may reduce the effectiveness of achieving any particular objective.

Differences. The college programs are often colored by the content area offering the course and certainly by the expected application to textbooks. Similarly an adult program having students from the same industry or type of work tends toward reading problems common to the group. In effect, while there are many materials used in common by the two types of programs, there is a commendable effort to use materials similar to those to which the student will eventually be applying his new reading proficiency. Along with this is also a greater emphasis on applying skills learned and transferring them to a new situation. It must be noted, however, that instructors in both types of programs usually follow the advice of many reading specialists and base initial work in improving of rate on easily read material. Programs in both areas use machines and printed exercises to varying degrees.

One of the most striking differences, although there is overlap in this variable also, is in terms of length of the programs with the college programs being longer partly because many of them are scheduled for an entire semester or quarter. Considerable effort is going into shortening adult programs because of the value of the time of management personnel. Probably the extreme in this direction is the successful program of Dr. McConike at Western Reserve University where adult training may require only 3-4 meetings with intensive practice between meeting times by teh student on his own.

The principle difference between the two types of programs is that the instructor must approach and use materials and activities that interest his particular group. So upon the basically similar programs is imposed the slight modifications to fit the general characteristics of the students.

New Techniques. In both adult and college programs there have been exciting experimentation with new techniques. Brainstorming and other group dynamic techniques have emerged as an effective way of bringing out various aspects of a reading problem, of suggesting approaches to its solution, and of stimulating tremendous student interest. Even psychotherapy and group discussion of problems have found successful application in improving reading performance. Very noticeable is the increasing emphasis on an old technique of recall measures of comprehension.

Instructors are using open ended questions, summarization, and application, (such as having the reader debate a point made) as well as the traditional multiple choice item.

Summary. Reading programs in colleges and adult reading programs have both been developing toward multi-objective training. While there

is great variability within either of the areas, the general objectives and methods, are very similar and frequently they are taught by the same personnel. While many of the same materials are used by both types of programs, there is a trend to start rate training with simple material but for later rate training and work toward other objective materials similar to the students regular reading is used. Similarly the instructors approach modified to fit the group. An effort is being made to shorten the adult programs which are already shorter than corresponding college programs. New techniques, such as brainstorming and group discussion of problems, are being used successfully.

Counseling in the Reading Program

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The literature on college and adult reading programs includes quite a bit of information on techniques and materials for instruction, but relatively little discussion of counseling as an integral part of the program. My purpose here is to summarize briefly the objectives of counseling in this special situation, the role of counseling in the total reading program, the nature of the emotional content encountered in counseling reading cases, and some suggestions for handling the emotional problems as they appear.

OBJECTIVES

From the point of view of the counselor, interested in the person as well as in the content of the reading program, the objectives of counseling may be summarized briefly as follows:

1. To make the client aware that learning to read is a life-time process, not simply something that occurs in the elementary school.
2. To make the client recognize and appreciate the complexity and variety of reading skills.
3. To induce a more adequate self-appraisal of reading skills by each client, pointing out strengths and weaknesses and correcting erroneous self-perceptions.
4. To encourage the client to have more realistic expectations. Some need to be shown that they can improve, and some may need to be shown that reading improvement is not a panacea for all their problems.
5. To shift the focus of attention and effort somewhat away from the mechanics of the reading process toward an understanding of the role of habits and attitudes.
6. To build self-confidence and self-reliance.
7. To facilitate in every way the development of increased skill in reading.

The Role of Counseling in the Reading Program

The sophisticated person working in a reading program soon comes to recognize that there are many sources of reading difficulty and that some clients exhibit clear evidence of psychological problems which are highly related to reading performance. An example is the student who has difficulty with concentration, and comes to the reading program prepared to be "taught" to concentrate. Interviews with such a person usually reveal that he does not necessarily lack skill but that he usually does have a vocational, an educational, a motivational or possibly a severe emotional problem. Such problems can only be dealt with in counseling.

In some cases, clients are people who have a long history of difficulty in reading dating all the way back to elementary school days. For them the process of learning to read has long been the stimulus for anxiety, feelings of failure and inadequacy, and humiliation. As they are again exposed to a situation identified as "learning to read," these old feelings often become aroused and interfere with learning experience.

A counseling approach is also needed in the diagnostic problems presented by some clients. Adequate diagnosis in reading requires not only measurement of skills in reading, but a psychological evaluation as well, to determine the causes of low achievement and to identfy the proper treatment.

To understand the point of view that counseling has an important role in skills work, one need only consider the functional similarity between the role of the skills worker and the role of the counselor. Both situations have in common three important elements: one, a client faced with a problem beyond his ability to solve; two, a psychologically trained person willing to deal with the problem, and who has ***rapport;*** and three, a willingness on the part of the worker and the client to work together toward a solution of the problem.

The Nature of Emotional Involvements in Reading

Emotional problems manifest themselves in reading and related behavior in a great many ways. Some of the more obvious and frequent indicators of emotional involvement in a reading problem are listed below:

1. Distortion of Reality. The student may over-evaluate his reading skills or may under-evaluate them. He may also distort reality by believing that reading ability is somehow innate and that nothing can be done about it. ("I have always been a poor reader, and always will be.")

2. The student may show evidence of lack of effort due to unwillingness to risk trying very hard to improve, using his reading problem as an excuse for poor performance in school.

3. Compulsive Reading. The student may feel compelled to read in a very careful, cautious manner, word by word. He may verbalize a desire to "speed up" his reading, but resists any effort to make him abandon his rigid, compulsive approach. In fact he may even indicate that he feels it is "sloppy" or even morally wrong to read without what he feels is adequate comprehension. ("A job worth doing, is worth doing *right*", etc.)

4. Nervous and Tense When Instructed. The student may be reliving anxiety associated earlier with learning to read.

5. Refuses to Read. Rejects reading as a mode of learning and tries to get along without doing any more reading than he is forced to do. He may even elect a distorted pattern of non-reading courses in college.

6. Lack of Concentration. This is probably the most common indicator of emotional problems which are related to reading and study difficulties.

7. Concern About Reading. He may be over-concerned about the difficulty he is having and so anxious that he cannot give his full efforts to improvement. On the other hand, he may be under-concerned about it and not very highly motivated to improve.

8. Fear of Discovery. He may be afraid that others will find out what a poor reader he is. This can make him very quiet and withdrawn (even secretive) in situations in which discussion and participation would ordinarily be to his benefit.

9. Transfers Symptoms. He may not want to admit, even to himself, that he has trouble with reading skills and he may try to place the blame on something beyond his control, such as vision, hearing, or other physical difficulties.

10. Gives up. He may appear to have surrendered to his problem, and may seem to be convinced that nothing he does will help him improve.

11. Escapes. He may find all sorts of excuses for not reading and studying. The ingenuity and the twisted logic used by students to rationalize away their study interruptions sometimes indicates great creativity which could be channeled into more productive uses.

12. Blame-Placing. He may complain bitterly about his weak background, poor teachers, poor schools, and anything else that will allow him to keep his self respect intact in the face of his reading problem.

13. Examination Panic. The poor reader usually knows that he doesn't get as much out of his study time as the good readers, and as a result he usually feels less well prepared for examinations. His weakness in reading raises his anxiety, which in turn makes him less able to deal with his academic work. This vicious circle is sometimes very difficult to interrupt without a great deal of contact with the student.

Providing for Counseling in the Reading Program

Some ways of dealing with the need for counseling as part of a reading program can be seen in the operation of the Educational Skills Clinic at the University of Minnesota. The Clinic is a part of the Student Counseling Bureau, and the staff members are seen by the students as 'counselors' rather than as teachers. Students meet in small groups of ten to fifteen members twice a week in a voluntary, non-credit, non-tuition program which usually terminates for the student at the end of one academic quarter. Some students continue working on an individual basis for as much as a year or two. In addition to the group meetings, the students have individual contact with the Clinic staff in at least two ways. Each student does individual practice work in the Clinic at times arranged for the student's convenience and much of this individual practice work is supervised informally by the counselors. Students also have individual counseling appointments with the counselor responsible for their group. Early in the quarter the students are given diagnostic tests, the results of which are available to the counselor together with the results of tests taken in high school, tests taken during the entering college orientation program, and any special tests the counselor may arrange. All records of counseling by other counselors in the Student Counseling Bureau as well as records of contacts with other campus student personnel agencies are available to the counselor.

Some students who are seeking help in improving reading, but who seem not to have any need for counseling beyond the initial diagnostic interview, are seen only once in a formal interview. Others may have weekly appointments for one or more academic quarters. In some cases it becomes clear that the student has a problem which may be quite unrelated to his reading and study skills. In that case, the counselor must decide whether he should work with the student alone or whether he should refer him to some other agency. A well-developed student per-

sonnel program can be a great help to the counselor in a reading program. At the University of Minnesota, for example, the counselor can share information and responsibility for a case with residence counselors, faculty advisors, college counseling offices, loans and scholarship counselors, a housing bureau, a speech and hearing clinic, a mental hygiene clinic, and many other agencies.

It is only through the responsible action of many cooperating persons and agencies that the appropriate help can be made available to each student. To do an effective job of counseling in the reading program, the focus of attention must be on the person with the reading problem, and he must be treated as an individual with his own unique set of needs.

The Measurement of Reading Comprehension

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In a previous report the writer discussed some of the weaknesses of the standardized reading test from the viewpoint of reliability, validity, and usability (2). Last year in an excellent paper, Stroud explored the background of measurement in reading improvement (3). The purpose of the present paper is to examine critically, the fundamental assumptions and methods employed to measure one of the most important factors of reading ability — reading comprehension.

Almost all reading tests of the survey type presume to yield a comprehension score from which certain generalizations may be made. The validity of such generalizations is open to question. Does a comprehension score yield information concerning a student's ability to understand materials with identical content or his ability to handle concepts of similar abstraction, or basically indicate his skill in understanding language written at identical difficulty levels or phrased in similar fashion? Practically all standardized reading tests key the answer to these important questions. Typically the survey type of reading test measures reading comprehension by presenting a student with various types of reading materials which are read under timed conditions. The selected passages may or may not consist of variety of subject areas and may or may not consist of various levels of difficulty. It is a rare test author who justifies his selection of materials on theoretical grounds. Generally, the pupil's comprehension of what he has read is checked by items of the multiple-choice type and the typical scoring formula provides for a compilation of scores. Usually no effort is made to determine whether an individual has previous knowledge of the subject discussed, is interested in or motivated by the subject, or is wise to the ways of reading tests or not. The set or previous experiences of the reader are assumed as being constant. Perhaps one important reason for the usual scoring methods is that by compiling the comprehension items the writer increases the length of the test and hence, probably increases the statistical reliability of the instrument.

Most reading specialists have expressed dissatisfaction with reading survey tests. The concept of reading rate in relation to comprehension

seems to have caused more concern than the methods of determining comprehension itself. The concern of the reading specialist grows out of a recognition that any test must constitute a valid and representative sample of the behavior being judged. Specialists long have been aware that there is a tenuous relationship between the tested skills and achievements and the day-to-day reading habits and skills of many students. It may be that some of us expect or demand too much of reading tests. All educational measurement is relative in the sense that tests furnish a common basis on which we can compare the behavior of two or more persons. Perhaps we are looking for tests which will do more than they can do — furnish merely one basis for comparison. Significant, positive correlations indicate that performance on reading tests are related to such characteristics as perception, personal-social adjustment, mental ability, language capacity, and numerous other factors. The nature of these relationships is interesting to speculate about. Are such relationships obtained because measures of reading are weighted with some unknown factor or are we dealing with a global factor which is an underlying component of personality? One reason why reading test authors have been able to ignore such questions is that the characteristics which correlate with reading test performance also function to assist the college student adjust to academic study, and also assist the adult worker to perform more successfully on the job. Other things being equal, the students and adult employees who are perceptive, best adjusted, brightest, and most verbal will tend to perform more satisfactorily in school or at work. The errors in reading measurement caused by a lack of refinement and theoretical basis, tend to be constant and in the direction of apparent validity. Despite the recognition that most of the commonly employed reading tests do have some claims for validity, the concern of reading specialists for improved measures of reading comprehension is encouraging.

Measurement is dependent, in part, upon the careful delineation of the behavior to be measured. One of the problems in appraising reading ability is that we are still uncertain about its nature. We describe it as a complex rather than a simple skill, but then simply list the component parts. We ignore the process of integration. Measures of reading tend to have little or no relationship to either current personality theory or to current learning theory. The failure of test constructors to provide a theoretical framework for measuring reading comprehension may result from the failure of reading specialists to demand such developments. Test constructors tend to develop measures which meet the needs and demands of their users. As reading specialists, I feel that we must share the responsibility for the direction reading appraisal has taken. One example should be sufficient to establish this contention. The concept of reading

rate as an independent factor in reading achievement is both spurious and illogical. Taken by itself reading rate is meaningless. The common belief that a person has merely one reading rate is one we strive to overcome in our reading improvement programs. We try to teach our students to adjust their reading rate to suit their needs and the nature of the material being read. Yet, we are content with an instrument which yields a single score based upon a limited reading selection. It is unlikely that a reading survey test would sell, however, if it failed to yield such a score. A number of other practical aspects of testing such as ease of administration and scoring, facility in interpretation can be cited which have resulted in limitations in test design and scope.

If the measurement of reading comprehension is to be improved, a somewhat different basis for appraisal must be established. Reading essentially is a form of communication in which a reader interacts with an author. As in all types of communication, the person receiving the message must attend to, take-in, respond to, and perhaps evaluate that which is communicated. Effective communication, therefore, depends upon such factors as the ability and willingness of the receiver to relate to the person communicating and his possession of a similar background so that he can utilize the knowledge, symbols, or concepts being transmitted in a manner like that of the communicator. He also must have had sufficient learnings and experience so that he is able to accept or reject the concepts and generalizations which the communicator makes. When the person receiving the message fails to respond because of different conceptualization of the verbal symbols, misinterpretation of language, or because of limitations in cognitive ability which prevent understanding we conclude that there is no communication. In the case of communication in reading we say that the reader fails to comprehend. Reading comprehension, therefore, results from a constellation of many factors and the reading comprehension score actually reflects the total behavorial response of the organism to a complex process. It seems likely that the poor comprehension scores of many college students reflect intellectual and personality components as measured by global behavior to a greater degree than they reflect weak reading mechanics or appraise reading skills. Such a conclusion would account for the success of counseling-centered programs, for they function to alter the adjustive behavior of their clients, with a view to helping them to relate to other persons or become more flexible in their perceptions of the world.

If we can consider measures of reading comprehension as actually being measures of a student's ability to communicate, we are still faced

with a problem of defining and refining that which is transmitted. If we ask an individual student to look in the phonebook and find the telephone number for Mary Jones who lives on Locust Street—and if the student successfully accomplishes the task, he has demonstrated comprehension. When the new bride opens a cookbook and successfully follows the directions for making chocolate cake, she also demonstrates comprehension. The student of statistics who uses his textbook to organize and solve a probability problem also is comprehending. Each has communicated with a written source and satisfied a need. Are all types of behavior identical? Can success in each be predicted equally well from a single reading comprehension score? Obviously, the answer is no. Many who have examined the literature on college and adult reading programs are struck by the fact that the bulk of reports which describe various types of programs indicate that students made substantial gains in rate while little or no gains in comprehension were noted. A favorite phrase employed is "without significant loss of comprehension." Most of us have noted that we can alter the reading rate of students by providing them with different motivations. Are our difficulties in improving comprehension due to the fact that it is more fundamental to total personality organization, and hence, more difficult to alter or change? Or is reading comprehension so complicated by non-measurable factors that our tests lack precision for appraising changes? Perhaps our basic need is to re-define what we mean by comprehension skills in a different manner.

If we regard reading comprehension as a measure of the degree to which a communicator and a communicant are ***en rapport***, a mere quantitative enumeration of the number of concepts acquired and the speed with which such stimuli are acquired might be considered a basis for measurement. Comprehension scores based upon measures obtained in this fashion have the advantage of being developed within a single theoretical framework. Generally, however, we feel that the mere recognition of stimuli encountered in a reading selection do not measure the higher mental processes we desire to evaluate. More often, we seek to evaluate the associative recall of the reader and some of our comprehension items are designed to measure the ideas elicited or indirectly related to the materials read. It is difficult to decide whether such measures are measures of reading comprehension or measures of cognition. It seems reasonable to assume that if we could develop instruments which would measure the speed with which a reader associates the concepts presented in a reading selection without involving other mental processes, we might obtain greater precision in testing. Such a test might be expected to have a somewhat lower correlation with the usual global type of intelligence test.

One of the real difficulties we face in measuring reading comprehension, however, is due to our failure to recognize that the reading process is communication that presumably implies some learning on the part of the reader. Implicit in our reading tests and in our assumptions concerning the reading process is the belief that through the communicative process certain changes occur in the behavior of the reader. Note how closely this belief resembles Hilgard's definition of learning.

> "Learning is the process by which an activity originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native response tendencies, maturation, or temporary states of the organism." (e.g., fatigue, drugs, etc.) (1)

If we consider the reading act as a communicative process from which certain behavioral changes occur in the reader, we are dealing with a description of a learning situation. It may be that some of our confusion concerning the measurement of reading comprehension stems from our failure to relate its measurement to contemporary learning theory. Most of our measures have little or no theoretical basis but rather reflect both eclecticism and empiricism in design and content. Any item which yields a statistical coefficient which is reliable or valid is utilized. At present, make no effort to determine what previous knowledge the reader brings to the situation. We ignore his personality components although we give lip service to his set and motivations. It seems to me that measures of reading comprehension developed within the theoretical framework of a behavioristic learning theory might have merit. Skinner's conditioning theory has the merit of being descriptive. His concept of respondents as responses elicited by known stimuli and his description of emitted responses or operants as related to prior stimuli might be employed as a basis for discriminating responses elicited by the reading process and those which are brough to the situation as a result of previous learning. A somewhat different approach might utilize the cloze procedure. A reading measure which combines the cloze test with more conventional passages might serve to furnish a basis for comparing the interaction of reader and writer with the degree of intake of the reader.

It is suggested that the concept of reading comprehension should be subject to careful re-examination and review. We cannot determine at present whether the positive correlations obtained between measures of comprehension and personality and intelligence are due to genuine relationships or impurities of measurement in each area. It is possible that a more behavioristic or descriptive definition of reading comprehension

may be of assistance. Certainly, a closer rapprochement with current learning theory is desirable. Our empirically designed and developed reading tests may have outlined their usefulness. At best, such measures sacrifice many measurement techniques which might be experimented with for reasons of practicality or usability. It seems likely, however, that a number of roads for research are available for the research worker.

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A Note On The Relationship Between Reading And Intelligence Scores

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A person with a basic reading problem can do poorly on intelligence tests of various types, including those that do not involve reading at all. We may suppose that deficiencies in intelligence bear either a casual or a concomitant relationship to deficiencies in reading. In a general sense, we know that deficiencies in intelligence test performance are associated with deficiencies in reading. Good reading ability, if we have in mind level of reading comprehension, simply requires a good mind. A person with a poor mind cannot, now or ever, aspire to a high level of reading comprehension. The finding of a single exception to this would make history.

These relationships do not come about from the fact that reading is involved in the intelligence tests. They hold for any and all good intelligence tests. The fact that correlations between nonverbal intelligence tests and reading are usually lower than those between verbal tests and reading comes about, I think, from the fact that most nonverbal tests are poorer tests of intelligence than verbal ones. If a worker does not have a nonverbal test handy, he can use a poor verbal test with about the same effect. The nonverbal test in the *Wechsler Intelligence Scale for Children* is, of course, an exception to all this. I suspect it derives its status largely from the fact that it is a good test rather than from its nonverbal character.

It is true that most group tests of intelligence require some reading. It vexes me that I do not know the point at which reading deficiencies begin to exert a prejudicial effect upon pupils' intelligence scores — effects that might be revealed by differences between group test scores and scores on Binet and Wechsler tests. A group test, verbal, would not be a good test to use with a sixth grade pupil who could not read at all. On the other hand, I suspect such a pupil need not be a whale of a reader to do himself justice on this kind of test. Just to mention a figure, I will suggest that something on the order of third-grade ability would be adequate. Undoubtedly, most sixth grade pupils with third grade

reading ability would do poorly on group tests of this kind, but if my figure is realistic, they would do about as poorly on a Wechsler or Binet test. They might do somewhat better on a nonverbal group intelligence test, but scores on such a test would correspond less closely to their academic performance than scores on a verbal test — again, I think, because they are poorer tests.

I have recently seen in manuscript a paper dealing with the relationship between California Test of Mental Maturity scores and Wechsler scores of a group of retarded and accelerated readers. The retarded and accelerated were reading one or more years below and above their respective MA's, as determined by the California test in question. However, the retarded readers were for the most part not poor readers. More than 50 per cent were above average for their grade, sixth, and only two pupils were reading below fourth grade level. Wechsler and California scores did not differ significantly for either group. This seems to be information of value, but it does not tell us how deficient in reading sixth grade pupils must be before the deficiency begins to have a telling effect upon group verbal intelligence scores.

Thus, there is a practical side to the questions raised here. While it seems probable that the role of reading in intelligence test performance has been overemphasized, there surely must be a point in reading deficiency below which pupils begin to be discriminated against. However, in thinking of the very substantial correlations obtained between reading test scores and intelligence test scores, it must occur to us that this relationship comes about to a very large extent from the involvement of the same types of mental process in the taking of the two kinds of tests. It is a striking fact that correlations between reading comprehension and listening comprehension are about as high as the respective reliabilities will allow. If we administer a form of an Otis test, for example, as a listening test and a form of a reading comprehension test as a listening test and correlate the two sets of obtained scores, we get a correlation a little lower than the correlation between Otis intelligence scores and reading comprehension scores when both tests are administered in the usual way, but the differences are consistent with the fact that both of these tests become somewhat less reliable when administered as listening tests.*

In our work, we have not entirely neglected the question of dis-

* J. Patrick Kelley, "The Influence of Reading Ability on Group Intelligence Test Scores," Ph.D Dissertation, State University of Iowa, 1959.

crepancies between verbal and nonverbal scores and their significance for educational achievement in general and reading deficiencies in particular. Test publishers and certain research workers have suggested that reading deficiencies should logically depress verbal more than nonverbal performance and that pupils achieving higher nonverbal than verbal scores should present reading problems with greater frequency than pupils whose verbal scores equal or exceed their nonverbal scores. It has been suggested further that multi-scores tests such as the California Tests of Mental Maturity have some usefulness as screening devices for spotting pupils in need of systematic diagnostic testing in reading. Accordingly, we established from a sample of about 500 fourth grade pupils to whom the California test had been administered, four groups of 25 pupils each, as follows: (1) an extreme nonverbal group — a group whose nonverbal scores exceeded their verbal scores by 24 or more IQ points; (2) a moderate, nonverbal group — a group whose nonverbal IQ's exceeded their verbal IQ's by from 16 to 23 points; (3) an extreme verbal group — a group whose verbal IQ's exceeded their nonverbal IQ's by 24 or more points; and (4) an equal group whose verbal IQ's ranged from 8 points above to 8 points below their nonverbal IQ's. It should also be stated that the pupils in the four groups were matched pupil for pupil in total or combined IQ, the mean IQ of all four groups being 113. The mean IQ of the sample from which these groups were formed was 111.

The pupils in the four groups received the Iowa Tests of Basic Skills and the Durrell Analysis of Reading Difficulty. Comparative mean scores of the four groups on the five ITBS subtests as obtained are presented in Table I. in grade equivalent values.

Table I

Mean Grade Equivalents of the IQ Groups in Area of Iowa Tests of Basic Skills

Divergency Groups	*Vocab.*	*Rdg.*	*Lang.*	*Work Study*	*Arith.*
Extreme Verbal	52.88	52.00	05.72	48.56	46.88
Equal Group	45.16	45.52	45.72	43.72	45.56
Moderate Nonverbal	41.80	42.92	40.04	41.80	44.56
Extreme Nonverbal	39.16	37.44	37.80	39.12	39.32

Obviously, discrepancies in favor of verbal scores were associated with superior achievement in all subject matter areas of ITBS and discrepancies in favor of nonverbal scores were associated with inferior achievement in all areas of ITBS.

In analyzing the Durrell test data, it was found that the incidence of reading deficiencies was significantly and substantially greater among the pupils in the high and moderately nonverbal groups and least of all in the high verbal group. This looked like pay dirt. Upon further reflection, I am not so sure. The results on the ITBS analysis show that pupils in high and moderately high nonverbal groups also had a higher incidence of difficulties than those in the high verbal group in vocabulary, reading, language, work study skills, and arithmetic. This outcome is consistent with the notion that nonverbal group tests are simply poorer tests, so far as prediction of success in school is concerned, than verbal ones.

Bear in mind that in our investigation, the average pupil with a 24 IQ point advantage in nonverbal IQ had a nonverbal IQ of 125 and a verbal IQ of 101. It is yet to be determined whether pupils scoring verbal IQ's of 101 and nonverbal IQ's of 125 have any more difficulties in reading than those scoring 101 on both verbal and nonverbal tests. Possibly, it is the low verbal component rather than the high nonverbal component or the discrepancy between them that is the key to this situation.*

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* Richard O. Gunderson, "The Significance of Divergencies Between Verbal and Nonverbal Intelligence Scores," Ph.D. Dissertation, State University of Iowa, 1959.

Evaluation of Eye-Movement Photography in Reading Diagnosis and Reading Training

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Eye-movements in the act of reading have probably been recognized and observed scientifically since the early part of the ninteeth century. In the early efforts to analyze eye-movements, mirrors and a variety of devices attached to the eyeball were used. These techniques were obviously ineffectual and uncomfortable, to say the least. Eventually, in about 1907, Raymond Dodge (2) devised the corneal reflection method which has proved to be the most practical and widely used approach to the recording of eye-movements.

During the next thirty years, a number of corneal reflection cameras were built at various universities and reading centers. Most of these cameras were quite elaborate and tremendous in size. One built at the University of Minnesota by Miles A. Tinker, for example, was about ten feet long and five feet high. (20) Not until 1932 was a small, semi-portable camera invented. This was called the Ophthalmograph and was offered commercially by the American Optical Company. It was designed by Earl A. Taylor and several members of his family, and was available until about 1939.

During this past year, a new eye-movement camera called the Reading Eye has been produced. This completely portable, simplified camera was devised by Earl A. Taylor's son, Stanford Taylor. It is sold by the Educational Developmental Laboratories of Huntington, New York.

I shall not attempt to discuss this new eye-movement camera in detail, for this is not the purpose of this paper. But actually it is the production of this new camera which has reopened the possibilities of research in eye-movements. This device has made possible this paper which explores the values of eye-movement photography in the act of reading. If a workable eye-movement camera, such as the Reading Eye, were not now available, this paper would be theoretical rather than practical.

This new eye-movement camera raises a number of very real problems about the whole topic of eye-movement photography. The older machine,

the Ophthalmograph, was severely criticized by many of its more scientific users. Some writers felt that the eye-movement records were not valid measures of reading performance. Some studies did not show high correlations between eye-movement data and certain reading tests. This finding, of course, does not mean a great deal for comparative studies of reading tests do not find uniformly high correlations even between tests supposed to measure the same skills. (3, 4) Gilbert, who has studied eye-movement photography for many years, (5, 6, 7, 8), demonstrated that reading before the camera was similar to that in other situations. Tinker (21) has also reached the same conclusions from correlations of .87 and .90 between rate before or away from the camera. There is little reason to doubt that, when comparable testing materials are used, subjects tend to read similarly in both situations. We shall attempt to point out other proofs of the validity of eye-movement photography later, in a discussion of the studies made with the latest version of the eye-movement camera.

The question of reliability of the eye-movement data was also raised by users of the Ophthalmograph. In their studies at the Dartmouth Eye Institute, Imus, Rothney and Bear (10) were dissatisfied with the reliability data found on their college subjects. They suggested that the reading selections were much too brief and should be considerably lengthened. Here again the avilable data refer to the eye-movement camera which is no longer available. To decide this point, it will be necessary to review the studies offered by the manufacturers of the new camera.

Why Photograph Eyemovements?

Eye-movement photography has never achieved universal acceptance in all reading centers. Many clinics do not use this technic either for diagnosis or as a means of evaluating the effects of reading training. It is pertinent, therefore, to raise these questions: Why bother to photograph eye-movements? What does eye-movement photography add to the diagnostic procedure or to the interpretation of training results?

Eye-movement records serve four basic purposes:

1. To survey the individual's mechanical functioning in the reading act.

Eye-movement photography can function as a survey technique for classifying subjects according to their needs for remedial programs. It can indicate persons who would experience difficulties in situations demanding great amounts of reading or studying, either in school or in

industry. It can assist in classifying individuals according to their aptitude for various work situations such as inspection, gauge reading, etc. As we shall see later in discussion of the specific facts obtained by photography these are distinctly relevant to planning the remedial reading program needed by the individual.

2. To obtain indications of the need for specific types of corrective instruction.

The eye-movement records reveal the maturity of the individual in terms of fixations, regressions, duration of fixations and span of recognition. Gilbert's recent studies lead him to conclude that pupils do not naturally mature or improve in these characteristics simply because they are exposed to the normal reading program. (7) Many individuals who show fairly normal performances on standardized tests of comprehension, and who apparently can read materials appropriate to their educational status, employ ineffectual or even harmful habits of reading. They may consistently show excessive regressions, or abnormal duration of fixation pauses, or a very high number of fixations and a very small recognition span. These characteristics might be subtly indicated by the pupils' performances in tests of reading rate. But, on the other hand, they may not. Some individuals compensate for narrow recognition span and many fixations by lessening the duration of fixation and their gross rate of reading does not reveal their ineffectual habits. Such a compensatory adjustment may be accompanied by a high degree of tension, excessive energy demands, rapid fatigue and consequent dislike for sustained reading.

Another type of difficulty revealed by the eye-movement record, and not by standardized tests, is the adequacy of directional attack. Some readers habitually regress at certain points of every line. Others show lack of accurate return sweep, with visual fumbling at the beginning of each line—or even no return sweep at all. Finally, poor directional attack may simply be shown by an excessive proportion of regressions when compared with total fixations.

Eye-movement records can be particularly relevant to the use of various mechanical training devices in the remedial program. They will guide the diagnostician, first, to decide whether machine training is advisable. Secondly, they serve to indicate the type, speed, and breadth of tachistoscopic exposures desirable. The records help to show whether speed or span training, or emphasis upon directional attack, or some modification of these is suitable.

It is extremely interesting to note here, when discussing various methods of mechanical rate training, certain other facts clarified by the use of the eye-movement camera. Much of our present-day mechanical training is built on the premise that the recognition span can be greatly increased. It is assumed quite widely that such increase is more or less permanent and that it is transferred to reading in situations where the machine is not employed. I have already pointed out several of the reasons why this belief is entirely inaccurate in a paper published in the 1958 Yearbook of this conference, (18), as well as elesewhere, (17).

Records made by the eye-movement camera on thousands of subjects show that the average span of recognition ranges from about one-half a word in the first grade to one and a third words at the college level. College students reading at the average rate of 340 words per minute still show an average span of only 1.33 words. Even when skimming at the rate of from 600 to 1380 words per minute, the readers studied by Grayum (9) averaged a span of 2.65 words per fixation. After prolonged instrument training or tachistoscopic work, the span for an exceptionally good reader averages about 2.5 words. Here again we see indisputable evidence that the rate gains achieved by various devices are not secured by mechanically greatly increasing the span but probably by inducing quicker perceptions.

3. To give indications of visual functioning difficulty.

The eye-movement camera does not attempt to record the visual skills or the visual functioning of the reader, except in the act of reading. Therefore, the camera cannot be a substitute for a complete vision examination. But because the camera does record the nature of the eye-movements during reading, it may provide evidence of functional difficulties and provide a basis for referrals to vision specialists. Three types of functional deficiencies are readily observed in the camera film. The first type is inadequate binocular coordination and vergence problems. Normally, both eyes perform similarly in the reading photographed by the camera. But when binocular coordination is lacking the movements of one eye may be less pronounced or even different than those of the other eye. One eye may not make the same interfixational movements as the other, or may make them to a lesser degree. One eye may overshoot on the return sweep, or there may be a lack of convergence at the beginning of each line. Both of these behaviors result in visual fumbling, loss of focus, excessive regressions, and confusion to the reader.

A second type of functional deficiency is lack of lateral or vertical

control. Because of imbalance in the lateral or vertical position or action of the eyes, again both eyes may fail to behave similarly in the reading act. Over-shooting the return sweep, regressions to achieve focus, random movements of one eye, etc. are clearly recorded in the film. All of these difficulties, incidentally, are reflected in the reading prformances in such ways as losing place, errors of omission, repetitions, slow rate, etc., although these visual causes for these difficulties cannot be detected by the ordinary reading test.

A third type of visual problem observable through the eye-movement camera is in the area of visual acuity. For example, prolonged durations of fixation are often present in myopia, or near-sightedness. Or, prolonged durations may be observed in persons with astigmatic errors which prevent rapid, accurate focusing. Disturbances of the convergence—accomodation balance are often manifest in the types of symptoms discussed earlier. Hyperopia, or far-sightedness, may be observed in a repeated regression in the second fixation pause on each line, because of the focusing problem. Cases of monocular or binocular nystagmus differ greatly from normal eye-movements in the film. Severe suppression of the vision in one eye is shown by the lack of parallel movements or by irregularity in the behavior of the suppressed eye.

4. To observe the reader's general adjustment to the reading situation.

Evidences of nervous tension and of physical discomfort in the reading act are recorded by the ye-movement camera. Pupils with those problems show less definite or distinct patterns of eye-movements. Their fixations are more irregular and frequent; they evidence uncontrollable head movements while reading; and they show other symptoms such as tremors, blinking and vocalization. The duration of fixations is also often quite variable.

These, then, are the four basic reasons for eye-movement photography: (1) to record the behavior of the eyes in the act of reading; (2) to secure indications useful in planning the remedial program; (3) to find symptoms of inefficient visual functioning or visual defect; and (4) to observe indications of maladjustment to the act of reading.

Recent Studies of Validity and Reliability of Eye-Movement Photography

We have refrained from citing many of the older studies of the validity and reliability of eye-movement photography. These studies

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were based on a cemera no longer available. Hence, in many details these studies are now outdated.

Since the new camera, the Reading Eye, has been released only recently, only a few studies of this instrument are available. A report of several of these studies was made at the May 1959 International Reading Association Conference and will be printed in the proceedings of that meeting. (19)

Taylor compared the reading rates of 90 subjects from the 4th, 7th and 10th grade levels on the Reading Eye and the rate section of the appropriate level of the Survey Section of the *Diagnostic Reading Tests.* His correlations were .83 at the 4th and 7th grades and .91 at the 10th. Rate on the camera was distinctly higher at the fourth grade level, similar at the 7th and lower at the 10th than on the reading tests. The significance of these differences or their reasons are not clarified, but they could readily be due to differences in the various testing materials.

A second study with 23 eighth graders attempted to show that the elements measured in eye-movement photography would be largely independent of the difficulty of the content. Each pupil was photographed while reading selections of 4th, 5th, and 6th grade, junior high and high school-college levels. These selections were drawn from the graded testing materials commonly used with the camera.

An analysis of variance showed significant differences when comparing the subject's reading at fourth grade level, with that at junior high, and high school-college. The author concluded that difficulty of content did not materially disturb the pattern of eye-movement characteristics when the material was at or below grade level. Significant differences were present when the material read was more than two grades above the reader's ability.

A third study was made of the influence of interest upon eye-movements. Thirty college students were tested on six short biographies which varied significantly in interest value. However, no significant differences were found in the eye-movement habits of these mature readers that could be attributed to their interest in the selection.

A fourth study dealt with the factor of conscious control of speed of reading. Twenty-nine eighth-graders were tested on three reading selections. On one, they were instructed to read to be able to answer questions. On the second, they were asked to try to read faster with equal or better comprehension. On the third, they were instructed to

try to read for almost perfect comprehension. A monetary reward was given after each reading for motivational purposes. The results indicate that students did not change materially in the "usual" reading and the "comprehension" motivated attempt. However, they reduced the number of fixations, increased their rate and lowered their comprehension when reading the "rate" motivated selection. The author concludes that there is a tendency to revert to the usual pattern of eye-movements when emphasis is placed upon comprehension. He emphasizes that when rate was stressed, the reading pattern changed but there was significant loss of comprehension. This implies that clinicians using the eye-movement camera should avoid stressing rate as a motivation for the reading. The author also suggests that reading under rate pressure is apparently an abnormal, less efficient process in most instances.

Like other earlier studies of the results of eye-movement photography, these studies imply that there is a characteristic pattern of reading for most subjects which is employed consistently except under rather abnormal conditions. Apparently this pattern of eye-movements can be reliably and accurately recorded by the present camera. Moreover, such elements of the pattern as rate are measured adequately by the camera, insofar as comparisons with standardized tests indicate.

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Integrating The Reading Program Into The Curricula

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As comparatively new-comers to the college community, reading improvement programs have been faced with a problem of becoming accepted by and integrated with older and more established areas of instruction. It has been observed that reading programs have been and currently are administrated successfully under the aegis of such administrative units as Departments of English, Schools of Education, Departments of Psychology, and Student Personnel Services. The availability of competent personnel, budgetary factors and others considerations have been basic to the organization and administration of such programs. Regardless of the nature of the pragram or the administrative organization, however, each reading program faces the problem of how best to serve the student body of the campus and how to integrate its work with the academic curricula of the institution.

A basic consideration in any attempt to extend the reading improvement services so that they supplement and reinforce other curricula must be a realistic appraisal of the nature of the total institution. Vast differences exist among the various institutions of higher learning. The richly endowed private university differs in many ways from the large state university. The small liberal arts college differs from the junior college. Local objectives and goals must be considered if the reading specialist is to be successful in supplementing or extending his program. The methods which the director of a reading program in a small college might successfully employ may not work in a large university. Within larger universities, one observes a greater specialization among the faculty, greater emphasis on research, and a greater tendency to rely on formal student personnel groups for assisting students. In small colleges, there are usually closer working relationships between faculty members and probably a closer relationship between faculty and student. It seems likely that the reading specialist who functions in the small institution may have a greater probability for successfully integrating the reading improvement program into the academic programs than would the director of a program in a large university. The few suggestions offered

in this paper, however, probably can be effective in all types of institutions if carefully carried out.

A cardinal rule which might serve as a basic principle in any attempt to extend the services of the reading program, is to recognize that the reading program probably will make more compromises than will the older, more firmly entrenched academic departments. As a Johnny-come-lately to the college campus, the reading improvement program may be faced with a problem of first proving itself. Any director of the reading program must approach the problem recognizing that he may have to give more than he takes. Departments will welcome coordination and assistance designed to help them achieve their teaching goals, they may be more reluctant to reciprocate by teaching reading or reinforcing skills and habits acquired in the reading program. A practical method of helping the reading program to become more integrated into the college community is to seek the assistance of a campus-wide advisory committee. Such a committee might consist of representatives of interested and influential schools or departments. A group of this type may assist in defining the objectives, methods, and materials employed in the reading program. Such an organization has the advantage of familiarizing the academic departments with the problems and accomplishments of the reading program. Furthermore, the committee may provide a basis for further efforts to integrate and implement the program. As the committee becomes "sold" on the reading program, a natural extention of its function is to turn the attention of its members to the problem of supplying greater assistance to their respective departments. The chemistry and biology departments might be asked to supply vocabulary lists which might be taught, the representatives of the mathematics department might be asked to discuss reading problems in mathematics, the English and social science group could contribute suggestions about mastering in their disciplines. Out of such discussions might grow a recognition of the need for each intructor to assist his pupils with the skills and techniques needed for mastering the subject matter in his field. The committee also can be called upon to suggest materials in the various academic areas which might be used as exercises in training reading skills.

Another technique which might be helpful is to invite members of the faculty to participate in the reading program as either teachers or students. Some reading specialists have conducted special faculty programs, which have assisted their colleagues and also helpful to sell their reading programs. In one institution, the writer managed to secure the assistance of several members of the English Department who taught in the read-

ing improvement program. These instructors became firm friends of the strengths and limitations of the reading program.

Integrating any new program into an already existing structure is extremely difficult. Each reading specialist must survey his local situation carefully. It is particularly important that he pay careful attention to the interpersonal relationships involved, and take pains that he not threatened vested interests or appear to be moving too quickly. To be effective he must move cautiously and slowly. As he succeeds, however, he will find that the skills and habits he teaches his students will be subject to better reinforcement. The result will be more permanent gains, a goal all specialists seek.

Across The Editor's Desk*

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It is pleasant as well as conventional to acknowledge flattering remarks of introduction in circumstances like this. But I consider it more than pleasant—it is indeed a privilege to come to the National Reading Conference and meet and talk with you and listen to the reports of members of this group. For there is a spirit and a force here which all of us recognize, but perhaps we do mention it sufficiently. It is more than enjoyment for most of us—and particularly for me, since I get new insights and find out new approaches and realize how much good work and intense thought are represented in the formal papers, the regular discussions, and informal talks in every one of these conferences.

Let me say then simply and sincerely that I am grateful to those who make it possible for me to be here—as all of you are, I am sure.

The topic suggested to me is "Across the Editor's Desk"—an informal kind of subject, and I intend to keep it so.

Now that we are well into our third year of publication of the JOURNAL OF DEVELOPMENTAL READING, perhaps it will be of some interest to you for me to recount some of our experiences, to suggest certain practices that will be useful for prospective contributors not only to the JOURNAL OF DEVELOPMENTAL READING but also to a good many other periodicals, and to discuss a few of our plans and ideas for the future of the JOURNAL and for the improvement of reading instruction.

As all may surmise and some may well recognize—if they have been involved in this sort of venture—beginning and working on a professional journal is an extraordinary experience. It is also exciting, frustrating, and time-consuming; and it never ceases to provide surprises of one kind or another. If patience is really a virtue, then our editorial staff and our Board of Advisors are indeed virtuous. For it seems to take at least

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* An address at the dinner meeting of the National Reading Conference. Dr. Schick is Editor of the Journal of Developmental Reading.

two years of preliminary inquiries, responses, committee meetings, appointments, conferences, rebuffs,—and more—to get a periodical underway. It also takes money—or better yet, a guarantee of funds for the first few critical years of life for a publication. I gloss over about twenty-two months of effort by saying briefly that the Purdue University Research Foundation ultimately granted us a sum sufficient to get us underway and to guarantee our basic costs for a period of thirty-six to forty month.

Fortunately, one can learn as one goes—in this sort of activity, too, and I think our editors have acquired a great deal of practical knowledge in our first years of effort.

On occasion, the correspondence received by an editor is quite extraordinary—in its way fully as interesting and extraordinary as the manuscripts submitted. For example, just a few weeks, ago, we received this note—on social stationery. It contained these words:

"Your letter regarding the publication of my thesis arrived on my wedding day. I dare say not many graduate students can make that statement."

In the first year of publication, I myself received two very gratifying notes. I had sent a sample copy or two to several of my friends—not specialists in reading—for their comments and suggestions. One of these notes was most pleasing. An associate in Navy World War II days who has edited two publications, one a monthly and the other a quarterly, looked over the first issues and remarked:

"Your last two numbers are very much improved. I sense that you are feeling much surer of yourselves than you were for your first two issues, and I think the Spring, 1958, issue reflects this confidence in your work very noticeably. Since that time I feel that you have hit your stride and need have no fears that your present editorial policies and practices are anything but successful."

Another came early in the first year from a very old friend—he and I worked together getting ready for the four-day written exams for the doctorate. His experience is very broad—he has done many sorts of publishing work, including the production of a successful trade book, etc. He wrote:

I have looked over two issues with a sharp eye, and I am very much

"Of course I know nothing of the people working with you, or the total number of hours all of you put in on the JOURNAL. But I do

congratulate your staff on the careful job of editing and proofreading. pleased to see that you have avoided the sloppy editing and careless proofing that we see in altogether too many good journals and books these days. If you can keep up your practices like this, you may be certain that your readers will appreciate all the tedious work of getting out a competent and readable journal."

All this is most pleasing, of course, but I must confess that at least five proofreaders, myself included, failed to catch an obvious misspelling of a proper name in one issue of Volume II. When I looked over the issue as it came from the printer, the typographical error simply leaped out and hit me right between the eyes. Still, we keep trying to avoid these faults.

As many of you realize, the local staff of the JOURNAL is made up of editors whose background is in English and linguistics—not psychology, or education, or statistical analysis. But we do refer papers of a highly technical nature to readers who can competently advise us on statistical evidence, psychological analysis, etc.

In our very first months of effort on the JOURNAL an excellent report came to us, but we found it somewhat too technical in language in a few phases, and we were unsure of a couple of the tables. So we decided to return it to the writer for some minor reworking, with suggestions. Now the manuscript has been sent to us by the writer's major professor; so we had to write to the author through an intermediary who is indeed a highly recognized authority on matters of reading. Frankly I wondered as I wrote to him just how he would take our comments in view of his long experience in the field. But I need not have been at all apprehensive, for his response was thoughtful and sincere and most cooperative, as these excerpts from his reply will indicate:

We all appreciated your kind letter concerning Jackson's manuscript. We are delighted at the prospect of its appearing in one of the early issues of your journal. We have not taken your suggestions lightly. While our work on the manuscript has been somewhat haphazard owing to the pressure of our summer school work, we have in each instance given serious thought to the questions you raised. I suppose your suggestion about technical terms caused us more trouble than anything else . . . .

In going over the manuscript it occurred to us that Table I was the most troublesome. Indeed I found that I could not read it myself without going back to the dissertation. Accordingly we worked over our discussion of this table quite a bit . . . .

I certainly agree that there was need of a better description of the text materials used in the reading tests. We hit upon the idea of listing the original authors, titles and publishers of the books from which the materials were taken. This, it seems, would not only serve to give the reader some appreciation of the kind and level of material used but also enable him to find and inspect the passages if he cared to do so.

But I do not wish to suggest that all our mail is complimentary, or gratifying, or enjoyable—far from it. Perhaps the most common kinds of frustrating letters we receive are those which sometimes accompany manuscripts. Although they differ in phrasing, the intent is something like this:

"I hope you will consider the enclosed article seriously for publication. I gave this paper in a panel a few weeks ago, and many of those present assured me that it ought to be published."

Unfortunately, however, a panel discussion paper usually needs reworking, since it was given as part of a whole presentation, rather than as an article with complete unity. And all too often in our experience, the author took his friends' comments too seriously and did not take into account the necessity of revision for a reader-audience of quite a different sort. Of the relatively few manuscripts which we have to reject outright, most of them show this lack of awareness of what means are necessary to make an idea presentable to a group of readers with varying backgrounds and different interests.

Sometime ago we had another letter that rather disturbed me. It was short and very plain:

"Please cancel our subscription to your magazine. The article by John Q. Smith is against all principles to which XYZ Center subscribes."

Sincerely yours, Mary A. Jones, B.A. M.A. Litt.D.

How should we handle this situation? I gave it some thought and finally devised the following reply, which I ultimately came to consider rather effective:

I shall instruct the subscription manager to cancel your subscription, as you requested.

But I should like to suggest to you, since you seem to have strong and sincere reasons for objecting to Mr. Smith's points of view, that the JOURNAL editors are more than willing to present varying approaches, differing practices, and opposing points of view in our pages. I realized, when we decided to print the article, that it might not appeal to every

reading specialist on our mailing list. But if the JOURNAL is to be a useful, stimulating, and lively clearing-house for ideas and techniques in the area of reading, it will necessarily present notions with which some readers will disagree. Indeed, it is only through airing our opinions and differences that we shall arrive at the best practices, as I am sure you will readily agree.

Accordingly, I urge you to consider the possibility of preparing an article presenting your own points of view, judgments, practices, and conclusions, for consideration by our editors. This essay could conceivably be cast in the form of a rebuttal, or it might directly set forth the ideas you wish to establish. A brief letter in reply to the Smith material would certainly be possible, but I suspect it would not give you full opportunity to set forth your opposing views.

It may be a good reply, but it elicited only complete silence.

My hope in this instance was to encourage a good, lively conrtoversy, which would timulate thought, provoke replies and counter-replies, and develop into some lively exchanges of opinions and points of view. For just as good hot arguments over a matter among specialists in any field are productive of further thought and lively results, so do letters to the editor, articles in rebuttal, and the like give vigor and usefulness to a professional periodical. On occasion I have deliberately tried to antagonize our readers in the hope of getting a good battle underway. But I confess that so far the really stirring controversies are still to come.

These are but a few of the letters addressed to the editor that come to us. Admittedly, the ones I have cited are unusual, but they may serve to illustrate the variety of experiences—satisfying, disturbing, and interesting, that an editor comes to expect.

There is another whole enterprise, which has been going on now for about eighteen months, that I shall merely refer to in passing. That is the matter of getting a periodical indexed by one of the indexing services. It is a long drawn-out process, almost inconceivably indirect and productive of frustration. But I think we are winning this contest; so I shall simply say that within a short time the JOURNAL OF DEVELOPMENTAL READING will be regularly indexed in well-recognized publications.

And now I should like to comment briefly on what the editors feel to be the function of the JOURNAL OF DEVELOPMENTAL READING

and to make a few remarks on editorial responsibilities, tasks, and hopes for the future.

Our objectives were stated in our first issue—broadly, to be sure, but in sufficient depth, we think, to comprise our function: "The specific goal of the JOURNAL is to provide assistance and stimulation for those concerned with teaching practices which will encourage confidence and pleasure in reading, make good readers out of mediocre readers, and foster proficiency in untrained and reluctant readers." Our scope comprises developmental reading as it relates to the improvement of the proficiency of adults and college or secondary students in whatever kinds of reading they may engage in.

To achieve this aim is our function. In order to do so, we are of course greatly interested in publishing the results of research activities—for there is much to be done in the whole area of reading improvement, of course. But at the same time we must not lose sight of the fact that our reader-audience for the JOURNAL is made up of many sorts of people—they are not only trained specialists, experienced teachers, experts in the field, but also inexperienced and new teachers, graduate students beginning to specialize, specialists in another field whose interest is just starting in matters of reading, training specialists in industry or adult groups who have barely heard of the practices for improving reading skill, etc. Hence our published material must have breadth and depth and professional competence of a genuine sort, but it must also be presented in such a fashion that beginners and those new to the techniques of teaching reading will be stimulated and informed and encouraged to think further. Idealistic as this policy may appear, it must be made actual if we are to serve our basic function adequately.

Please do not misunderstand—research materials are the most significant articles we can publish. But they must be so presented that they are eminently readable by those not as well trained as the authors in their own area of specialization.

Let me pause here to urge all of you to stimulate enquiry and research thinking on the part of your colleagues, and assistants in graduate work, and students in general. As I look back on my own graduate training, which was, I think, broad and deep and expansive in scope, I find one serious lack. I was forced to think long and often about literary history, about individual authors, about historical developments in literary history, about movements and trends in creative writing, but I was not sufficiently guided in the matter of research possibilities, of fruitful

avenues of research, of opportunities to prepare material for publication. To be sure, it is more than possible that I was given advice, suggestions, and hints that I neglected — from ignorance or unawareness or downright dullness. But I realize now that much more could have been said and done which would have urged and encouraged me to recognize and seek out problems, research topics, and publishable subject matter generally.

In our own headlong desire to get our own projects completed or research underway or articles published, we have also a real obligation to stimulate and foster creative thinking and problem-solving by our associates — research that may be ultimately published so that others may share the fruits of these efforts and achieve growth of their own.

It is our function as editors of the JOURNAL OF DEVELOPMENTAL READING to enable authors really to communicate their excellent ideas and practices, techniques and research problems and solutions, to those who subscribe. In this connection, let me remind you that we hope soon to publish an article projected by Prof. Don Smith of the University of Michigan which will set forth practical methods of preparing research materials for publication. As now planned, this paper should be of genuine help to the neophyte and perhaps the experienced researcher as well in its treatment of organization, techniques for the preparation of data in graphs, tables, charts, and descriptive paragraphs, etc. I am looking forward to seeing it in its final form, as I suspect many of you will also.

As for the matter of future plans, it is of course a prime function of an editor to devise means by which a periodical may present new features, solid articles in the areas covered by the journal, and informative discussions of well-known practices and techniques.

But please bear in mind that an editor can publish only that which he receives in the way of useful material. To be sure, he frequently suggests possible topics and papers to those he knows and knows of, but in the main he is limited largely to the publication of materials which come to him in the day's mail. And he welcomes — quietly but with tremendous enthusiasm and satisfaction — suggestions for prospective articles, letters of comment and rebuttal and clarification, and above all articles that merit the attention of readers.

Our review editor reminded me just before I left for this conference to be sure to suggest that he is constantly seeking reviews from new sources. Indeed some of our subscribers tell us that they value more highly than any other factors the good, solid, critical reviews of current

books that we try to present in every issue. So I repeat his words "please ask for suggestions from prospective reviewers, for titles of books we should review, and for reviews by those whom I may not already have approached."

At present I find that we could use some provocative manuscripts on adult, industrial, and business programs. We try to present materials on all three areas of our coverage—secondary school, college, and adult programs. But I receive fewer articles on adult programs than on the other two areas.

All the same, perhaps we should remind ourselves once more that a competent and solid article on reading problems in, say, the college area, has many implications for the teaching of reading wherever it may take place. There is no need to belabor this point, I am sure, but the task of bringing about the improvement of reading skill has so many common features in every area of the field of instruction (save, perhaps, the elementary grades) that few of us can afford to ignore any statement of significance as regards reading practices wherever they may take place.

Also, for those of us who have been working in matters of reading for several years, or decades, it may be well for us to recognize the fact that ours is a relatively new field and that intensive reading training is quite a new and disturbing concept to a host of well intentioned and eager but not too well informed teachers and the public in general. It is our job to explain clearly and definitively what we are doing and what can be done to improve reading proficiency—and to expose charlatans for what they are. With all the commercial claims and outrageous publicity, we shall have to offset these wild promises with simple reasoning and concrete expositions of fact.

To this end, we shall continue to run articles on good, working procedures in high schools, colleges, and adult programs in the pages of the JOURNAL. One of my editors sometimes complains quite bitterly, "But these things have all been said before. X high school is now doing a good job in reading, but do we need to repeat these accounts of another first-rate program?" My answer to this—and I hope you agree fully with me—yes, we do need to continue to give space to descriptions of training programs which have proved themselves, for some of our readers of the JOURNAL are new to the task of teaching reading improvement, and they can benefit a great deal from learning how others have met the needs of their students. Furthermore, many of us who have been

teaching reading for some time would be willing to admit that our own techniques and procedures could well be improved upon. I am open to conviction on this point—and on many others, I trust, but as an editor I feel that one of our tasks is to provide information for every sort of reader we may reach—the neophyte as well as the seasoned and experienced specialist.

By way of conclusion to these remarks on the thoughts and printed matters that come to the editor while he sits at his desk, I should like to quote from the wise and somewhat pointed remarks which William Riley Parker published as a foreword to a recent book put out by the Wayne State University Press—*Publication Guide for Literary and Linguistic Scholars.** Parker was an editor for many years and these comments arise from his long experience. Many of thes remarks are unnecessary for most of those present, but perhaps they will help to advise your colleagues and students on matters of preparing material for publication:

Many scholarly authors have little notion of the number of periodicals which exist to publish the fruits of their scholarship. There is here, if not a paradox, at least a provocative question: How did so many authors become scholarly authors and yet continue so ignorant of the periodicals which publish scholarship? Too polite to answer this, I hurry to a related problem which, as former editor, I still find fascinating: Why do so many scholarly authors persist in sending offerings to journals which they have evidently never inspected? They do, believe me; the proof is in the utter inappropriateness of manuscripts that arrive—their length, or their subject, or the way in which they are written, or the form in which they are typed. Editors do not develop kindly feelings toward such authors . . . .

I used to marvel at what goes on in (or is absent from) the minds of *some* scholarly authors. I received articles bearing unmistakable evidence of having first been sent to, and rejected by, other journals. Occasionally I got term papers with the instructor's comment unerased or still faintly legible. All too often I saw articles that very evidently were typed years ago and had just been discovered in a desk drawer. Too many authors seemed to me to be unmannerly people who said in effect to editors, 'Here, you, read this if you can—and if its appearance doesn't

* Reprinted from *Publication Guide for Literary and Linguistic Scholars* by Milton Bruce Byrd and Arnold L. Goldsmith, by permission of the Wayne State University Press.

discourage you from the attempt.' Having been a fairly prolific author long before I became an editor, I was puzzled . . . .

There is . . . an art to scholarly writing beyond the realm of stylistic grace or effectiveness. Basically it lies in ***adjusting what we say to the knowledge we may reasonably expect our readers to have.*** To do this, we must know our audience. If we know our audience, we can make all legitimate assumptions and no unreasonable ones . . . .

. . . . I close with the heartfelt wish that all scholarly authors would try to familiarize themselves with editorial and publishing processes—and their costs. Have pity, I beg, on the hard-working, worthy people who will have to handle your manuscript if it is accepted—the editor, the reader passing judgment on its merits, the copy-editor, the compositor, the various proof-readers. In other words, use a fresh typewriter ribbon, type on decent paper, use a fresh typewriter ribbon, leave adequate margins, type everything with double spacing, use a fresh typewriter ribbon, read and reread your manuscript carefully for typographical errors and errors of fact, and, ***please,*** use a fresh typewriter ribbon."

Initiating the College or Adult Reading Program

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It is not uncommon for a college dean or business executive to express an interest in establishing a reading program. He has heard of one which a neighbor or competitor has instituted, he has had experiences which indicate to him that there is a need for reading improvement, and he believes, sincerely, that an improvement program will be of value to his organization. This is most commendable, but, unfortunately, is only the beginning.

A popular song of recent vintage suggests, musically, that "wishing will make it so". This is a heartwarming thought in time of distress, but unfortunately is not necessarily so. Just wanting a reading program is not enough. In order for a program to be successful, the wishing must be supplemented by preparation, strategy, and planning.

Few experienced administrators will attempt to initiate a reading course without laying the groundwork and assaying the likelihood of success. The following points are suggested to the person initiating a reading course as a checklist of questions which should be considered before a reading improvement program is initiated, if possible.

1. *What is the need?* Instead of a generalized impression that a reading program would be a nice innovation the persons responsible for the program should have a clear idea of the objectives of the program. What skills need improvement? In an industrial program, the chief objective might be to increase letter-reading speed. If this is the case, improving study habits or critical reading skills would be superfluous. It is useful to work out a statement so that those concerned will know what the program is supposed to include. "Those concerned" in the foregoing sentence includes, of course, the colleagues of the person teaching the course. An attempt should be made to have everyone involved understand what is being done, and why.

The attitudes of the participants concerning the need for taking the course is an important one. If a student registers because a dean has forced him into the reading course, he is not likely to profit from it nearly as much as he would if he genuinely wants to improve his reading, and believes that the course will do so.

2. *How can these needs be met?* The man who wants to improve his speed of reading business letters may be helped as much by a fifteen-minute talk on skimming at the Rotary Club as by a ten-week course. If the objectives are narrow, the courses need not be broad. It is important for the program to be designed, in terms of time involved, content, and organization, so that it will be most effective.

In some cases, mass instruction is as effective as small group work. In some situations, group discussion is fruitful; in others, instruction does more good than discussion. In many respects, the success of a method of instruction is related to the teacher. This brings us to our next question.

3. *Who will teach the course?* The teacher can make or break a reading improvement course. Specialists are not plentiful, and it is usually wiser to employ an experienced teacher instead of hoping that a person already on the staff will be able to assume this responsibility successfully. The teacher's attitude toward the course is as important as his knowledge, however. A negative person or a compulsive talker does not belong in a course in which attitudes toward reading and study are being built, and in which *silent* reading is being practised.

Often English teachers are asked to teach the reading courses. This is logical because of their interest in language. Sometimes, however, the English teacher's orientation toward reading improvement is faulty. He might be more interested in the niceties of expression than in the absorption and interaction of ideas. Sometimes a person in guidance work teaches the course. He is often more concerned with related personal problems than with the reading. But both teachers might be very successful. Persons with many different types of training and background have succeeded in teaching reading improvement programs. Perhaps the most important characteristics of a good reading teacher — beyond knowledge of

the reading process — are an interest in people and a wide range of personal interests.

4. *Where will the course be taught?* In almost every case, it is best for the reading improvement course to have a home of its own. A room in which materials and equipment can be displayed and stored makes for a favorable impression upon the student and peace of mind on the part of the teacher. If a permanent headquarters is not possible, a convenient closet or storage space is necessary.

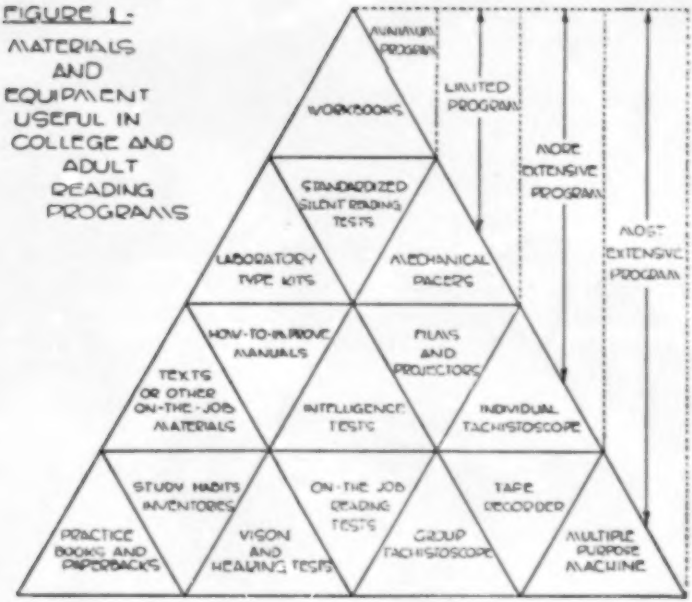
5. *What shall we call our program?* Reading improvement programs have been called by many names. Among them have been; Reading Laboratory, Speed Reading Program, Executives' Reading Course, Study Improvement Program, Reading Improvement Program, Reading Acceleration Course, and Reading Clinic. It is probably best for the title to appeal to the cupidity of the student by offering something desirable. Local circumstances will dictate the most useful title.

6. *What materials and equipment are necessary?* To some extent, this problem is similar to the transportation problem most of us face. A motorbike would suffice for getting us to and from work, to the grocery store, etc. but most of us are not satisfied with the barest essentials of cheap transportation. Some of us utilize finely engineered Rolls Royce or Mercedes Benz machines because we can afford them and like the convenience, workmanship, and aura of conspicuous consumption which they generate.

Reading programs can be designed at the motorbike level, and, although the comparison is not likely to be valid, at the Mercedes-Benz level. The accompanying figure presents some of the types of materials and equipment which are available for the use of the college or adult reading teacher.* At the apex of the triangle

* The triangular presentation was suggested by Ferrell N. Conn, graduate fellow in reading at Mississippi Southern College.

FIGURE 1 - MATERIALS AND EQUIPMENT USEFUL IN COLLEGE AND ADULT READING PROGRAMS



is the minimum program, and each succeeding level provides a more extensive program. There will be differences of opinion as to the relative position of certain materials, and no brief is made that this triangle is all-inclusive. It does express the opinions of some reading specialists on the relative value of these materials.

7. *How much expense is involved?* The minimum program — using only a workbook — can be engaged in for the price of a workbook for each student and the cost of the teacher's salary and normal overhead expenses. It is unlikely that a minimum program will satisfy many persons, however.

With each progression down the triangle, additional expense is involved. In the case of equipment, this is usually a capital investment, requiring an original outlay and some provision for maintenance for several years. Tests, workbooks and such materials will be expendable, and should be provided for in each year's

budget. Thus the ongoing expense is likely to depend upon the traffic, but the greatest expense is in the original investment.

Since the greatest administrative interest in the reading program is likely to occur at the initial stages of the program, experienced directors often suggest as large a capital investment as the traffic will bear during the first year. The budget is more likely to provide a large sum at this time than at a later time, when the program is no longer new.

8. *How will the program evaluate progress?* Two kinds of evaluation are necessary in a reading program. First, the individuals who participate should have their progress measured in as many ways as possible, and this progress should be made clear to the individual by means of charts, comparisons of scores, and personal conferences with the teacher.

Second, the program itself should be evaluated regularly to determine whether it is performing its function. Objective reading tests are almost invariably called for as part of the evaluation process. One excellent source of information about the available tests is Oscar K. Buros' *Fifth Mental Measurements Yearbook*, published by the Gryphon Press in Highland Park, New Jersey. Opinion surveys among participants in the course, studies of grade averages or other production figures should also be used to help evaluate the effectiveness of the program. Our standardized tests have not been developed to the stage at which they can measure all the progress made in a reading improvement course.

Summary

Questions which should be considered by a person responsible for initiating a college or adult reading course were here presented. Only after considering the many aspects of a program should it be launched, if it is to fulfil a purpose and become successful.

Avoiding Some Common Mistakes

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A consideration of the errors to be avoided by college personnel in the processes of starting a reading program was included at this point for two reasons. First, Lyle Miller's survey, presented in the *Eighth Yearbook* of the National Reading Conference, revealed the surprising statistic that 13 per cent of the colleges which had reported reading programs in 1955 had discontinued their college-level reading instruction at the time of his 1958 study. While Miller's respondents did not identify "weaknesses in the reading program" as a major reason for the termination of the course, it is not unreasonable to suspect that some of these reading programs might have been continued if they had functioned more efficiently.

The second reason for the treatment of the mistakes commonly made in college reading instruction is the writer's observation of several reading programs which have been seriously hampered or which were even abandoned because of some of the mistakes itemized in the remainder of this discussion. These listed errors may seem rather obviously avoidable, but they have been and are being committed. Now that the materials and pedagogy for college reading instruction are fairly well developed, the adequacy of the reading course in a given college may very well depend upon the avoidance of mistakes in matters of detail.

PROBLEMS OF INITIAL ORGANIZATION OF THE READING PROGRAM

College administrators should not forge ahead with plans for a reading program if a major segment of the college faculty is indifferent or resistant to such plans. The need for a reading course can be demonstrated to key faculty personnel by means of standardized test results combined with simple research based on a small-scale pilot reading program. The principal of a good-sized midwestern high school (with an enrollment greater than that of most liberal arts colleges) incorporated a reading efficiency course into the tenth grade English curriculum, even though the chairman of the English department felt that there was no room in the English course

for any additional instructional units. This program received considerable help in its first year from an experienced reading methodologist who more or less made the program succeed. However, because the English instructors, and particularly the department chairman, were not really convinced that they should devote some of their time to the reading training, the program died in its first year, and was not repeated in subsequent years.

In some instances it is the higher level of college administration which is unconvinced of the value of a reading program, while the instructing staff favors the program. The administration seldom objects, in such cases, to a trial program with a few sections of students. Evidence from the experimental effort can usually be employed to satisfy the administrative objectors that a larger program would be justified. In any event, it is nearly always unwise for the instructional staff to request funds and facilities for a large-scale reading program if the important administrative officers are unconvinced of the value of reading courses.

When a reading program is about to be initiated in a college, it is not unusual for one or two of the prospective reading instructors to visit well-established reading programs at other nearby colleges. This would seem to be quite a wise course of action, but it is probably not advisable for the visitation to be limited to a single institution, especially if the visitors plan to model their reading course after the one they observe. A few years ago, the Reading Laboratory at the University of Oklahoma was inspected for a couple of days by a professor who planned to set up a reading course at a university in an adjacent state. Near the end of his observations, the visitor commented that Oklahoma did not seem to be operating a model reading program. While this was an accurate observation, it was not appropriate to imply that the Oklahoma reading course was deficient in that it didn't serve as a model to other universities. Then, as now, Oklahoma maintained the sort of reading instruction which seemed justified by the philosophy and needs of the University; another university with different objectives and a different sort of student body could not expect to copy the Oklahoma program. Even when an instructor borrows ideas from a great many other institutions, he should expect to adapt them somewhat so that they will fit the peculiarities of the local situation.

On the subject of objectives, it may be well to suggest to those planning new reading courses that they should not begin the teaching

without a statement of goals of the reading program, as well as a priority order of the types of students to be helped. As soon as other members of the general faculty learn that the reading instruction is being offered, they will refer students with all sorts of reading problems. The reading instructors are often deluged with students who do not fit into the new reading program at all, but unless a precise statement has been made as to the course objectives and the type of students to be admitted, faculty members will expect all their advisees to be accepted. The statement of objectives and the definition of the types of problems to be treated should be written in advance of the opening of the course, and should be approved by the college administration. At Sam Houston State College, Huntsville, Texas, Dennis Jones prepared a statement of philosophy before beginning a reading program this year; anyone seeking help with a statement of definition for a reading program might profitably inquire of Jones.

Measurement Problems

Once the goals of the reading program have been defined, it is desirable to select tests that measure the abilities which are to be improved. this seems a rather obvious step, but the writer has heard the complaints of a number of beginners in the field who had been unable to demonstrate gains in their reading efficiency course because they were using different forms of the reading comprehension sub-test of the Cooperative English Test before and after the instruction. Anyone familiar with the Cooperative knows that while it is a good test in several respects, it is not suited to the measurement of short term gains in reading efficiency.

When selecting informal test materials to be used in daily drills, it is important to realize that the nature of these daily test materials will influence the nature of the learning. Thus, if the daily drill materials are saturated with questions that require only recall of details day after day, students will learn to read for insignificant details, and will not develop the skills needed to identify main ideas, to draw inferences or to read critically.

Selection and Use of Audio-Visual Equipment

Most college reading programs feature mechanical devices to some extent, and a question which confronts the beginning instructor or organizer is, "What mechanical reading equipment do we need?" Most experienced instructors would be reluctant to attempt an unequivocal

answer to that question. Perhaps it would be more appropriate to suggest that initiators of college reading courses should discount the information given by equipment salesmen. To date the representatives of audio-visual equipment manufacturers have not been operating at a level of intellectual maturity comparable to the representatives of the major publishers. Many of the equipment salesmen display techniques expected of used car salesmen rather than the salesmanship usually encountered by school personnel. While this condemnation of the group undoubtedly is an injustice to some equipment salesmen, it is nevertheless true, as the more respectable equipment salesmen have doubtless realized.

Once a piece of equipment has been acquired for the reading program, the manual for its use should be studied carefully. Again, this seems too obvious to be worth mentioning, but a great many of the questions submitted to the State University of Iowa by users of the Iowa Reading Films are answered in the manuals which accompany the films.

Some of the more common mistakes made in beginning reading programs concern the use of sub-standard audio-visual equipment and facilities. Visitations to new reading courses would disclose a surprising number of projectors with undersized bulbs, screens which should have been retired years ago, viewing rooms which cannot be darkened adequately and reading accelerators in need of adjustment. Some neophyte reading instructors apparently fail to realize that a student reading from a tachistoscope, a pacer or a reading film is reading in a very unnatural situation and therefore deserves the best possible image of the printed words.

As reading efficiency courses have become popular across the country, a few opportunists have managed to become reading instructors. Some of these opportunists are not very good teachers, so they let the mechanical devices carry the burden of the reading pedagogy. Possibly this is even to the advantage of the students in some cases, but it usually results in very inflexible use of the mechanical aids. An instructor who is essentially a machine operator rather than a teacher will use his equipment in a rigidly prescribed fashion, and if it doesn't seem to get results with some students, he will fail to make adjustments in procedure to accommodate individual differences. Such an instructor will complain that he has no luck with the tachistoscope, but interrogation reveals that he has used only number and symbol slides in the projector and has not tried using words because no word slides came with the equipment. Similarly, he

will find fault with reading films because they seem to be too fast for some of his students, yet he has made no attempt to group the students homogeneously by speeds or to decelerate the film speeds in any of the ways suggested in the manual. A good fifth grade teacher makes adjustments in her mode of presentation when it seems necessary for some learners; adjustments in the use of reading devices are equally important at the college or adult level.

Selection of Printed Instructional Materials

Within the limits prescribed by the objectives of a reading course, it is desirable to use books, workbooks and other practice materials with at least a minimum of variety. If the practice exercises are all the same, day after day, the student will learn to read mainly one kind of material, whereas their college reading assignments demand the use of quite a variety of skills. College students must be able to adjust their reading style to meet quite a few different reading demands, so the reading program which has no variety in exercise types may be giving only minimal service to its clients.

While seeking reading materials that demand a variety of reading styles, it is advisable also to search for some exercise materials which include context of good academic quality. Several of the prepared workbooks contain articles which are admittedly quite interesting and easy to read, but they hardly prepare the student for the type of reading required of him in his academic course work. Fortunately, there are a number of college reading workbooks which contain well-written articles about significant subjects. A few of the recently published reading manuals are even organized to feature sets of articles on scientific, social and literary topics. Aside from the values which high grade reading materials provide for the students, the inclusion of some such materials is necessary if the reading program is to enjoy the endorsement of other members of the general faculty.

Problems of Classroom Procedure

Because a lot of different materials are used by each student during the reading period, it is quite easy for the classroom to become very cluttered unless an attempt is made to minimize the confusion. Each student may have a workbook, some material for pacer reading, a pair of comprehension checks for reading films, some scratch paper, and a pro-

gress chart. If all these materials are distributed during the reading class, the teacher will feel that he has lost much time and some class control, and the students will be at least a little de-motivated. It is, therefore, important to streamline the distribution process, and most instructors have arranged materials so that students can pick up some or all of the day's materials as they enter the classroom. Other time wastes can be avoided if students are given procedures for indicating their attendance, checking their own answers and recording their performances.

There is a temptation for young instructors to talk to their students too much. College students do not generally become efficient readers as a result of intellectual persuasion, but through directed practice in actual reading, so an overwhelming percentage of the class time should be spent on reading practice. Of course, if counseling is being employed to overcome certain obstructions to learning, talking is inevitable, but when the fundamental reading skills are being developed, the students should be given abundant practice in those skills without the vocal accompaniment of the instructor.

In regard to planning the lessons for a reading course, it is, as usual, wise to plan on a long-range basis so that each of the course objectives will be given some attention. Too many reading teachers simply conjure up some activity for each day as it comes along. When planning and teaching, a single lesson should not be assumed to be adequate for the teaching of one of the comprehension skills. If these skills could be learned that quickly, they would have been mastered years ago.

The inauguration of a college reading program can, of course, be harrassed by problems other than those mentioned in the preceding paragraphs, but any instructor or program director who can eliminate all the mistakes listed above should enjoy a highly successful first year. Probably the best general advice that could be given to anyone starting a college reading program would be the recommendation that he read the various yearbooks of the National Reading Conference. At one time or another, these yearbooks have dealt with almost every problem that is likely to occur in a college reading course, new or old.

Keeping College Reading Programs in Operation

PAUL CONRAD BERG
University of South Carolina

The problem of keeping college and adult reading programs in efficient and effective operation is the very problem, I presume, which creates reading conferences and associations and causes busy professors to read, at least in part, the many studies and essays which are printed each year about reading. Because we are interested in doing a better job than we are doing, we listen to speeches, read journal articles, and generally get from wherever we can such information as we can that will help us to improve and to keep our reading programs directed toward serving the student.

In the years between 1950 and 1953 I made a fairly exhaustive study of the available literature written on college reading programs for the purpose of listing practical and efficient procedures for college reading improvement based on an integration of the available research. It is interesting to note that, while the original compilation and analysis was finished some six years ago, continued review of the literature in keeping the compilation up to date indicates that those concepts, techniques, and procedures which maintained the greatest confidence among reading specialists then are still, in the main, the same basic concepts, techniques, and procedures which guide the majority of our reading programs today. To generalize the results of some four hundred pages of findings into a few statements would be an over-simplification indeed. However, certain broad areas stand out as points on which programs most often succeed in maintaining an effective service. I cannot pretend to list these generalizations in order of importance, nor can I make the listing inclusive. Rather I shall discuss those which seem to me to have the greatest implications to a conference of this nature.

First, perhaps, is the problem of student motivation. In discussing this facet of a reading program at last year's conference, it was stated that if the learner recognizes his need, believes that reading will help him in satisfying it, and if guidance is given him in making his selection of reading materials, real motivation will likely take place. Although this statement is probably generally accepted, the way in which it is

carried out in practice may make the difference between a program efficient in its operation and one that is not. For example, does the program make available a variety of materials for training that the learner sees as both intrinsically interesting and purposeful to his own evaluated needs? And what about the organizational plan of the program itself? Is it conducive to motivation and interest, or is the student's right to learn violated by involuntary selection procedures and a skills-drills format for which he has not the slighest motivation or interest?

A second characteristic which dictates to the effective operation of a program is the degree to which the student can see beyond the mechanical features of eye movement and perceptual span and understand that reading is an act of reasoning. Not only must he see reading in its general aspects of reasoning, such as the ability to organize, to select the main thought of the passage and its supporting details, to draw inferences, and the like, but he must also see how to apply these in a special way to the various areas of the content fields.

A third characteristic which relates to the effectiveness of a reading program is the way in which vocabulary and word study are taught. Again, a summary of the literature suggests that ***methods*** of learning new words are more important to the student than is the memorization of words *per se*. Several investigators, for example, have pointed out that the less artificial and thus the more functional method of dealing with vocabulary is to work with words, not in isolation but as they appear in a given context. Many studies have further shown that a knowledge of Latin affixes and roots helps significantly in the improvement and growth of English vocabulary.

A fourth characteristic which may dictate to the effectiveness of a program is the manner in which the concept of rate is understood by the student. Wittenborn (5), clinical psychologist at Yale University, summarizes the generally accepted view by stating that the most outstanding single attribute of a good reader is his flexibility. The rate that he advances through printed material is determined by at least three factors: one, the difficulty of material; two, the familiarity of the material; and three, the purpose he has in reading it.

At the heart of the program, of course, is the instructor himself. If, in addition to adequately interpreting into practice the characteristics of a program already mentioned he can maintain a confident attitude within his students, keep optimism alive, and reduce the sense of personal in-

adequacy, he is probably on his way to maintaining an effective and efficient program.

Thus far we have made only some suggestions regarding the effective operation of the reading program. Follow-up, as we wish to define it here, is almost inextricably linked to the function of the reading program itself.

Many follow-up studies of college reading programs have been made, indicating that such programs do improve the reading level of the students enrolled in them. Although the bulk of these studies shows immediate post-test gains, a number of them have been done in an attempt to measure relatively long-range improvement of academic achievement. While all studies do not show a consistency of transfer from program to course work situations, the findings of Kingston and George, for example, indicate "that participating in a college reading program may assist students to achieve more satisfactory academic achievement when their curriculum is largely linguistic in nature". (2) This also suggests what other studies have indicated: that general reading comprehension is not a unitary skill that is applicable to all reading situations, but that there is a high degree of specificity in the factors relating to reading comprehension in a given content area. (1) This implies that the more instructional technique and content are related to the actual study type situation, the more the transfer of technique to content will take place.

In order to discuss the problem of follow-up, we should define it in our present context. We have already indicated some of the types of follow-up studies that have been and are continuing to be made. These studies have at least in part the purpose of directing the establishment of new programs and the modification of programs already in existence. Dr. Emery Bliesmer's yearly reviews of research on college and adult reading programs discuss the implications of the findings of follow-up studies. For our present discussion we shall use a point of reference with regard to follow-up which is not so commonly found in the literature. This is the follow-up of the students who have been exposed to the program for the purpose of exerting a continuing influence on their academic achievement.

The nature of many reading programs is to enroll students into course-type activities, and, after the completion of the program with its post-test appraisal, the students are generally lost sight of with no effort to maintain any type of liaison with them or their course instructors. I should like to direct my remarks to the suggestion that the reading

program has a responsibility to include the continued academic development of the student in its follow-up program.

First, a program worthy of any kind of follow-up must be one with carefully defined goals; second, evaluation of the program must be tailored to fit these goals. If we are to be able to offer any type of continuing service beyond the reaches of the formalized classroom program, we must be able to state rather explicitly what kind of study or reading activity the student can or cannot do. That is, if the goal of the program is to offer practice in certain isolated skills, including isolated practice on rate of reading and vaguely defined skills of comprehension, then a single survey test may indeed measure all that has been taught. However, if the instruction has included an integrated presentation of skills as they operate in the particular content areas, then a single comprehension-rate type of survey test cannot measure the learning that has taken place, and therefore there can be no directed follow-up. For example, in the book *Faster Reading for Business* (3) the authors attempted to create a series of pre- and post-evaluation situations which involve a coordination of activities which make up business reading. With evaluations of this nature, not only can the results of training be measured relatively accurately, but the student and the instructor know the type of coordinated activity in which the student still needs direction and special practice.

If a follow-up program rests its value on a functionally-conceived, goal-directing reading program in the first place, along with valid evaluation procedures, then the reading clinic must enlist aid from several directions if the work begun in the college reading program is to follow the student back into his content area classroom. First of all is the student himself, secondly the content area teacher, and thirdly an understanding student personnel program. The student will be able to help himself as he leaves the program if he has experienced a basic change in his concepts about reading and if he has learned how to transfer these changed attitudes into actual change in his work habits. Frances Triggs (4), speaking at the fifth annual meeting of the Southwest Reading Conference elaborated on this point by stating that reading program work should be carried out without the constant individual attention of the teacher, and that the instructional materials should be self-administering and should be specific. In this way the student will understand what he is doing, why he is doing it, and will take responsibility for it.

The second person who should be brought into the process of continuing education through follow-up of the student is the subject-matter

teacher. Again to quote from Dr. Triggs: "It seems that remedial teachers' time would be better spent if they helped the teachers make their teaching meet more closely the needs of the individuals in their classrooms. Some will say that they don't want such help, but many do. The English teachers want help with improving the spelling skills of their students. The literature teachers want to know how to help students in their classrooms with the reading skills most pertinent to reading literature. The mathematics and science teachers want help with the classroom approach to the specific problem of reading in their subject-matter areas." Here we might refer back to the earlier statement about valid evaluation. With specific information about a student we are able to make specific suggestions to a content teacher regarding a particular student. Perhaps one of the major reasons that some of us do little of this kind of follow-up of the continuing effect of our reading program is that the other professors on campus know little or nothing about our services to their students. It would be interesting to find out just how much or how little our respective faculties know about our work. Perhaps a short questionnaire to all faculty members on our respective campuses about the services that we offer their students would be quite enlightening and not a little humiliating in some instances.

A third force that should be enlisted in a continued follow-up of the student by the reading clinic is a coordinated student personnel service. A coordinated liaison between the various facets of a college or university's student services can mean the difference between mediocre and rewarding and worthwhile service.

Thus far we have suggested that continued service to the student should be a part of the follow-up program of a college reading clinic. Realistic and functional goals, valid evaluation techniques, and the enlistment of the student, his various professors, and student personnel services help to make possible the student's academic development beyond the doors of the reading clinic. I should like to illustrate how these characteristics function in one particular reading clinic. Although some minor changes may have been made since my association with it, is my understanding that these basic principles of operation still function. Under the direction of Dr. George Spache at the University of Florida, the University Reading Laboratory and Clinic offers to over six hundred students a year the kind of follow-up that I have been describing. To begin with, each student is given individual counseling, including individual selection of a program to be followed and the instruments of evaluation to be used. These are individually selected in keeping with

the needs and purposes of the student's professional goals and program of study. Through counseling, and informal sessions with materials selected to meet his own evaluated needs, the student is encouraged, through continued guidance, to work out his reading and study problems, try his new-found skills in his own texts, and return for further guidance and directed study as long as he feels it necessary. Through this type of program administration, follow-up of the student to his content-area needs is an integral part of the whole program.

Because of the high face-validity of such a program, the student's aid in trying these skills in his various content courses is almost automatically enlisted. Further, a great deal of work goes into each year's planning to enlist the aid of the university's professors. Various published announcements of the program, staff meetings, and the opportunity to speak in many classrooms across campus during the university's orientation program give many opportunities to gain the necessary cooperation of other faculty members. Thus it is not unusual for faculty members of the various colleges to seek out the reading clinic for information and help in working with an enrollee of the clinic.

Further, an aggressive student personnel service acts as liaison to other services on campus, a source of referral to the clinic, and in general aids and supports it.

We have tried to suggest here that while there have been a relatively large number of studies of the results of reading programs with subsequent suggestion for continuation or modification, there have been relatively few studies or reports on a follow-up of the students with the purpose of guiding their reading improvement beyond the limits of a stipulated reading course or program. Through a program oriented not only to general reading skills but also to specific application to the student's own content areas and with evaluative information directly applicable to the student's content reading tasks, continuing education is possible. With the cooperation of the student, his content area teachers, and other student services on campus, a follow-up of the student himself may save him from again falling back into the same old habits of study and reading that he had before he ever came to us.

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